A3000 • A5000 • ARCHIMEDES • BBC • MASTER

ACORN USER

DECEMBER 1992

£1.80

THE GAMES ISSUE

40 pages of pure play

CableNews on trial

The good shareware guide

How to get complete control of your Draw files



'Batteries not included'

Just like a new toy without batteries, a computer even with a processor as fast as Acorn's is powerless without good quality software. And now NEW from Iota comes an all new piece of software, which is arguably the most POWERFUL piece of software to be released on the Acorn Platform this year.

DATAPOWER is a powerful Database incorporating a frame based 'form designer' user interface, that prides itself on being easy to use. You can incorporate pictures, true multiline text, multiple choice questions, tick boxes and much more. It has built in graphing facilities, with over 20 different styles of graphs, that can be displayed in 2d or 3d and they can be incorporated directly into your reports as draw files.

DATAPOWER uses built in compression and a state of the art file structure, to ensure that your Datafiles are not only small to store, saving you disc space, but that they are also very FAST to access when it comes to using your data.

DATAPOWER also has powerful reporting capabilities, with an on screen editable preview of your report that can incorporate headers, footers and summary totals, averages, or even a simple three column label printout.

To ensure you have all the latest powerful innovations, DATAPOWER is the first piece of software* that incorporates 'Drag and Drop'. Which means that you can pick up text from one field and drop it into another, or even drop it straight into a different application, such as EasiWriter or Impression, as part of a report or letter. You can even Drag and Drop pictures straight from one database to another, so finally there is no need to cut and paste from an invisible clip board, you can simply drag and drop!

Using the power of the software to make your computer useful, and at the same time easy to use.

DATA POWER



Launched at the Acorn User show
Available from November

RRP	£149
SITE LICENCE (Upto 10 Stations)	£347
SITE LICENCE (Any no of stations on one site)	£599

(All prices ex VAT – Please add £2.50 P&P)

CALL NOW FOR A BROCHURE ON (0223) 421542 or write to:
Iota Software, St John's Innovation Centre, Cowley Road, Cambridge CB4 4WS.

IOTA SOFTWARE

School order forms welcome

* On the Acorn RISC-OS range of computers



24-bit colour from a monochrome BJ-10 or DeskJet!

Or almost any other printer which can take coloured inks or ribbons.

Two-pass printing for best results on a DeskJet 500C. No more soggy brown blacks!

Results comparable in quality with print from a £2000 colour printer.

CMYK colour separation 'on the fly' using normal files (Draw, Impression etc) and standard RISC OS printer drivers or Computer Concepts' TurboDrivers.

Screen preview of colour separations. Fine tuning and non-linearity compensation to suit different inks.

Discover the excitement of colour printing for the first time, or improve the quality of your current work.

!ColourSep Ink Setup Chart

Cyan

Magenta

Yellow

Key Black

ColourSep

Goodbye Monotony.

Single user copy £25. Site Licence £60.

Bargain Starter Packs (software + inks + cartridges):
BJ-10 £95*. DeskJet 500 £69. Add £35 for Sites.

Order from ICS or ask your dealer.

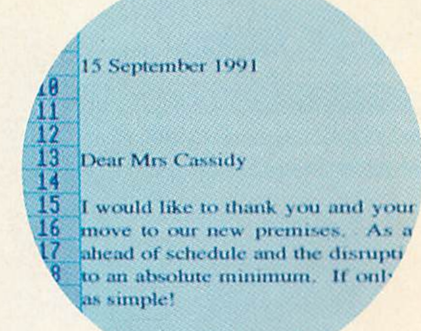
Prices exclude VAT. Carriage is free on UK prepaid orders. *Or £59 without cartridges.

ICS (Ian Copestake Limited)

Dept B37, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007





PIPEDREAM 4

Imagine a flexible word processor in which you can use fonts and pictures to give stunning presentation to your letters and reports. And a 93,000 word spelling checker and user dictionaries for letter-perfect writing.

Imagine the most powerful spreadsheet package on the Archimedes. Background recalculation so you carry on working while it computes. 160 built-in functions, plus a programming language for your own custom functions. Arrays within slots for easy manipulation of structured data.

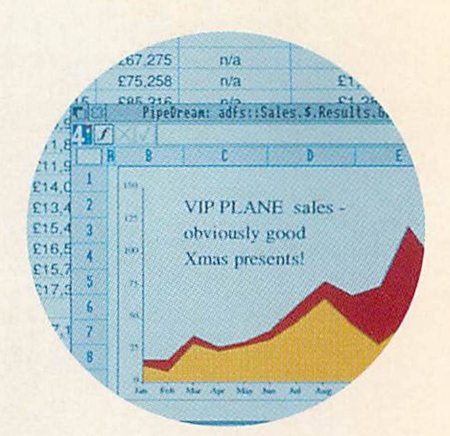
Imagine dynamic charts straight from your data. Multiple scales to compare trends. Personalised Penguin Graphics with bars filled by your own draw files to dazzle your friends and colleagues.

Imagine a fast and compact database package with full sorting, searching and selection criteria. With links straight to the word processor for printing mail-shots and labels.

Imagine user-friendly features such as configurable menus, template files to start new documents from, and automatic fitting of column widths to the data.

PipeDream 4
the works
Free your imagination.

RRP £196+VAT. Call for education prices and site licences. PipeDream 4 is ideal for any Archimedes, A3000 or A5000 with 2MB RAM or more.



COLTON software

Coltonsoft Limited
2 Signet Court
Swanns Road
Cambridge
CB5 8LA
Tel: (0223) 311881
Fax: (0223) 312010


For a free 4 brochure, complete and return this coupon.

Name ______

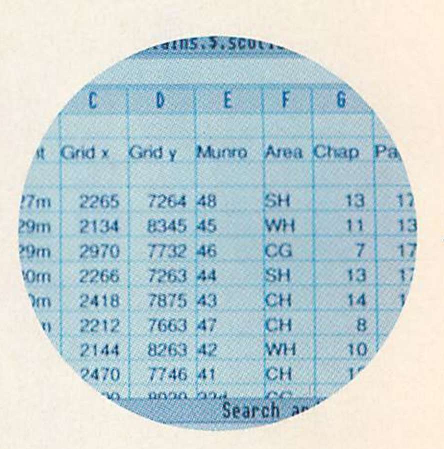
Address ______

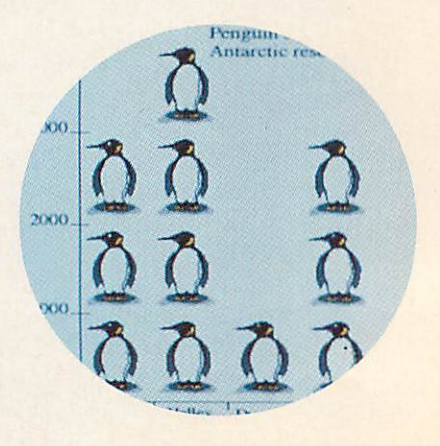
______

______

______ Postcode ______

AU/12/92





DECEMBER 1992

COVER PHOTOGRAPHY
GEORGE SNOW

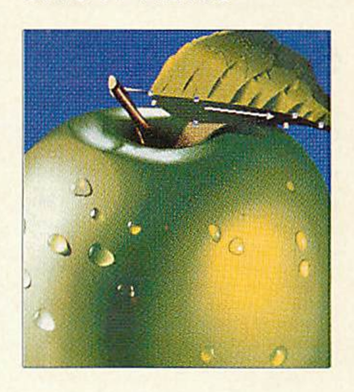
Published by Redwood Publishing, a BBC Enterprises Company, 101 Bayham Street, London NW1 0AG. Tel: 071-331 8000. Fax: 071-331 8001. Bureau setting and ad typesetting by Bold Gray Design, 52 Rosebery Avenue, London, EC1R 4RP. Colour by Trumps Studio, Ware, Herts. Printed by Cradley Print Ltd, West Midlands. Distributed by BBC Frontline, Park House, 117 Park Road, Peterborough.

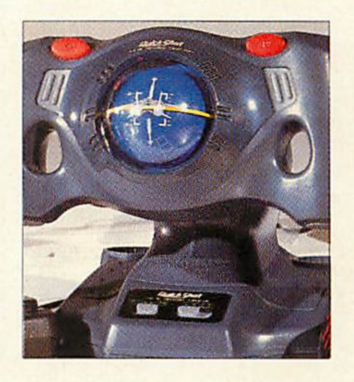
ABC Member of the Audit Bureau of Circulation

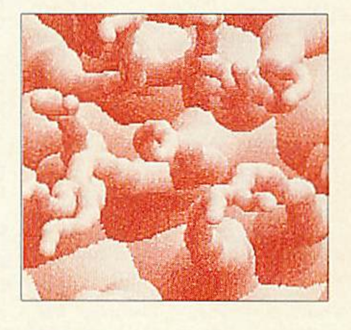
Redwood Publishing is a registered data user. ISSN 0263 7456.

PRODUCED ON THE ARCHIMEDES

All the editorial pages in BBC Acorn User are produced on a DTP system using Acorn computers, Computer Concepts' *Impression 2* with Laser Direct printers and Taxan monitors









Pendown Plus	Longman	£68
Personal Accounts	Apricote	£29
Pesky Muskrats	Coin-Age	£19
Picture Book	Triple R	£15
PinPoint	Longman	£69
– site licence		£390
PipeDream 3	Colton	£118
PipeDream 4	Colton	£148
PipeDriver Dot 1	ICS	£10
Pipe Mania	Empire	£18
PIPP1 Primary Integrated Project Planner	CIS	£36
PIPP2 Professional Integrated Project Planner		
– 5-14 Programme	CIS	£85
– Middle	CIS	£52
– Primary	CIS	£44
– Primary: Homes	CIS	£12
– Resource Centre	CIS	£129
– Secondary	CIS	£69
Pirate, age 8-14	Chalksoft	£19
Placard	ICS	£10
– site licence		£30
Plague Planet	Alpine	£13
Podd	ESM	£25
Poizone	Eterna	£14
Polyominoes	Toopologika	£29
Populous	Krisalis	£19
Poster	4mation	£75
Powerband	Fourth Dim	£21
Prehistoric Animals, sprites	Micro Studio	£16
Premier	Circle	£71
– DataBase	Circle	£25
– WordProc	Circle	£25
Presenter GTi	Lingenuity	£62
PrimeArt	Minerva	**£49**
PrimeWord	Minerva	£55
Printer Driver, RISC OS		
– BJ10ex TurboDriver + Cable	CC	£42
– BJC800 TurboDriver + Cable	CC	£89•
– CA (Canon PW1080A)	Ace	£15
– CC (ColourCel)	Ace	£15
– Deskjet 500C	RISC	£15
– Epson, Star colour	RISC	£15
– HP (HP Colour)	Ace	£15
– JX (Epson, Star and Citizen colour)	Ace	£15
Pro Artisan	Clares	£70
ProCAD	Minerva	£POA
Programming in ANSI Standard C on the Archimedes	Sigma	vo £17
Prophet (requires 2 Mb)	Apricote	£134
Prophet Demo	Apricote	£10
Protext	Arnor	£114
Provocator	Computer Tutorial	£15
Puncman 1 and 2	Chalksoft	£16
Puncman 3 and 4	Chalksoft	£16
Puncman 5 to 7	Chalksoft	£17
Punctuate	Xavier	£31
Punctuate!	Topologika	£19
Purchase Ledger	Minerva	£78
Quest for Gold	Krisalis	£19
QuicKey	ICS	£15
– site licence		£45
Real McCoy 2	Fourth Dim	£24
Real McCoy 3	Fourth Dim	£24•
Redshift	Minerva	£11
Render Bender I	Clares	£55
Render Bender II	Clares	£85
Reporter	Minerva	£29
Repton 3	Superior	£14
Revelation 1	Longman	£54
Revelation 2	Longman	£95
– CD Rom	Longman	£123
Reversals	Chalksoft	£17
Rhapsody 2	Clares	£45
RiscBASIC Compiler	Silicon	£79
RiscForth Compiler	Silicon	£79
Risc OS Companion Vol 1	Oak	vo £49
Risc OS Extras 1992	Acorn	£9
Risc OS Programmer's Reference Manual	Acorn	vo £79
Risc OS Style Guide	Acorn	vo £11
RoboLogo	Silicon	£39
Rockfall	Eterna	£16
Round the World Yacht Race	Storm	£29
Sales Ledger	Minerva	£78
Saloon Cars	Fourth Dim	£18
Saloon Cars Deluxe	Fourth Dim	£27
– Deluxe Extra Courses	Fourth Dim	£16
Schema	Clares	£89
School Administrator	Minerva	£65
Science, drawfiles	Micro Studio	£25
Score Draw	Clares	£45
Scorewriter	EMR	
– PMS Dot matrix, Version 1		£127
– PMS Dot matrix, Version 2		£147
– PMS PostScript		£422
ScreenPlay	Widgit	£35
ScreenTurtle	Topologika	£37
Search and Rescue, age 9+	Storm	£27
Seashore Guide, drawfiles	Micro Studio	£16
Sesame Street	Electric Crayon	
– Letters for You		£16
– Numbers Count		£16
SFXM	CIS	£32
ShapeFX	Data Store	£10
ShareHolder	Silicon	£106
ShareHolder Professional	Silicon	£234
ShowPage	CC	£149
Shylock Gnomes, age 10-15	Selective	£19
Sim City	Krisalis	£19
SkyHunter	Longman	£23
smArt	4mation	£50
smArt Aliens, Animals, Dinosaurs, Egypt, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *Please specify English, French, German, Spanish or Welsh – each	4mation	£15•
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
Snippet (new version)	4mation	£35
Soapbox	Xavier	£34
SolidCAD	Silicon	£79
SolidsRender	Silicon	£79
SolidTools	Silicon	£234
Spark	David Pilling	£5
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speech!	Superior	£14
Spelling week-by-week	Chalksoft	£22
Splice	Ace	£29
Sporting Triangles	CDS	£20
Sports Day	Selective	£22
Square Route	Computer Eyes	£16
Stock Management	Minerva	£78
StockPack	Topologika	£39
Studio24Plus Version 2, age 11+	EMR	£149
Studio24Plus Version 3, age 12+	EMR	£210
SuperDump	Silicon	£20
Superior Golf	Superior	£14
SuperPlot	Silicon	£20
Supersounds	CIS	£15
Supersounds 2	CIS	£12
Swiv	Krisalis	£19
System Delta Plus II	Minerva	£50
– Reference Guide	Minerva	vo £25
TABS	ExpLAN	£95
Tactic	Eterna	£15
Talisman	Minerva	£8
Talking Pictures	Wyddfa	£POA•
Target Maths	Triple R	£15
TechWriter	Icon	£200
Thinklink	Xavier	£29
Thundermonk	Minerva	£8
Timetabler	Minerva	£549
Time Traveller	ESM	
– Britain Since the 1930s		£27
– The Victorians		£POA
TimeWatch	Mitre	£24
TinyLogo/Draw	Topologika	£27
TinyPuzzle	Topologika	£19
Titler	Clares	£120
Toolkit Plus	Clares	£35
Tools Graphics, drawfiles	Micro Studio	£23
Top Banana	Hex	£19
Touch Type	Iota	£39
Tower of Babel	Cygnus	£17
Trace	David Pilling	£5
Tracer	Midnight	£46
Tracker	Leading Edge	£37
Transport, drawfiles	Micro Studio	£25
Trivial Pursuit	Domark	£22
Turbo Type	CIS	£20
Tween	Ace	£26
Twin	Acorn	£24
Twin World	UBI Soft	£14
TWO (Task and Window Organiser)	ICS	£15
– site licence		£60
TypeStudio	RISC	£43
Utility Disc 1	Data Store	£8
Utility Disc 2	Data Store	£13
Utility Disc 3	Data Store	£7
Utility Collection	Data Store	£21
Vector	4mation	£75
View»Mac 3	Human	£65
– Arc/Mac Cable	Human	£24
Vox Box	Clares	£47
Waterloo	Turcan	£23
Whale Adventure	Topologika	£27•
Whale Facts	Topologika	£27•
Whale Games	Topologika	£19
Wimp Game	Fourth Dim	£16
WindowEd	Armen	£29•
Wonderland	Virgin	£24
Words and Pictures	Chalksoft	£17
WordWorks	CC	£38
World Championship Boxing Manager	Krisalis	£20
World Geography Maps, draw	Micro Studio	£23
World Map Study, age 7-16	ESM	£42
Worldscape	Leading Edge	£16
World Wildlife, sprites	Micro Studio	£16
Worra Battle	Oak	£14
WorraCAD	Oak	£83
X-Fire	Fourth Dim	£21
Z88: A Dabhand Guide	Dabs	vo £15
Z88 PipeDream Guide	Dabs	vo £15
Zarch	Superior	£14
Zelanites (not OS 3)	Micro Power	£16

HARDWARE



Please ask for details of combinations not listed here

A3010 1MB FD Family Solution	Acorn	£420

Family Solution + *ideA'92*

Special price when you buy an A3010 with an ICS internal hard disc upgrade:

– Family Solution + 20 Mb hard disc	£599
– Family Solution + 60 Mb hard disc	£699
– Family Solution + 80 Mb hard disc	£759
– Family Solution + 120 Mb hard disc	£859

A3010 2MB FD Learning Curve with Monitor	Acorn	£675
– as above + JP150 Printer		£889
A3020 2MB FD	Acorn	£749
A3020 2MB HD60	Acorn	£899
A4 2MB FD	Acorn	£1395
A4 4MB HD60 with free PC Emulator 1.8	Acorn	£1695
A4 4MB HD80	Acorn	£1795
A4 4MB HD120	Acorn	£1895
A4 Extra Battery Pack	Acorn	£50
A4 Shoulder Bag	Acorn	£35
A4000 2MB HD80	Acorn	£945
– as above + Home Office		£995
A5000 2MB HD80 Multiscan	Acorn	£1395
– as above + Learning Curve		£1455
Pocket Book	Acorn	£212

MEMORY . . .

Fitting extra unless otherwise stated
† Fitting easy ‡ Fitting needs expertise

A3000 2 Mb Non-upgradable †	IFEL	£55
A3000 2 Mb Upgradable †	IFEL	£63
A3000 4 Mb †	Atomwide/IFEL	£140
A3010 1-2 Mb		£49
A310 2 Mb Upgradable soldered ‡	IFEL	£99
– as above + MEMC1a		£149
– as above + MEMC1a + fitting		£200
A310 4 Mb soldered + MEMC1a ‡	IFEL	£225
– as above + fitting		£277
– as above + fitting + OS3 carriers		£298
A5000 2-4 Mb Non-upgradable †	Atomwide	£85
A5000 2-4 Mb Upgradable †	IFEL	£99•
A5000 2-8 Mb including fitting	Atomwide	£500
A5000 4-8 Mb including fitting	Atomwide	£391
A540 4 Mb †	Atomwide	£238

PRINTERS . . .

ArcLaser 300-6	Calligraph	£895
ArcServer 300-8	Calligraph	£985
Bubble Jet BJ-10ex	Canon	£187
Bubble Jet BJ-10ex + TurboDriver	Canon/CC	£221•
Bubble Jet BJ-20	Canon	£255
Bubble Jet BJ-300	Canon	£299
Bubble Jet BJ-330	Canon	£405
Bubble Jet BJC-800 + TurboDriver	Canon/CC	£1499
DeskJet 500C	Hewlett-Packard	£429
Laser Direct HiRes4 with 50-sheet tray	CC	£899
– 250-sheet Paper Cassette		£99
Laser Direct HiRes8	CC	£1280
Laser Direct LBP-4 Card	CC	£325
LBP-4	Canon	£659
Refill toner cartridge for Canon EPS		£50
New toner cartridge for Canon LBP-4		£59



MISCELLANEOUS . . .

386C PC Expansion Card	Aleph One	
– 1 Mb		£463
– 4 Mb		£579
4-slot 4-layer Backplane	IFEL	£59
9060S Monitor	Eizo	£450
A300/400 Fan kit	ICS	£15
A310 RISC OS Carrier Board ‡	IFEL	£21
A5000 Fitting Kit for second hard disc	ICS	£15
Arckey Function KeyStrip Holder	ICS	vo £3
– pack of 4		vo £10
ARM3 ‡	IFEL	£175
Dongle Dangle with screw fittings	ICS	£6
Fan filters (pack of 10) (not A5000)	ICS	£6
FaxPack	CC	£289
Floppy Discs, 10 × 3½" High Density		£10
HiPoint Mouse for A4	Genius	£49
Micro Mouse	Clares	£26
Monitor Stand for A3000	ICS	£21
Podule Case for A3000		£16
RISC OS 3 Upgrade	Acorn	£41
– Bulk package	Acorn	£335
– A5000	Acorn	£17
Seal 'n Type spill-proof Keyboard Covers		
– Archimedes / A5000	Kador	£14
– A3000	Kador	£14
TouchWindow	Lindis	£234
Whisper Fan Quietener (for A300/A400 series only)	ICS	£15

SCANNERS, DIGITISERS . . .

ArcScanner including Epson GT-4000	Clares	£1660
Colour Converter	Lindis	£145
FaxScan	Spacetech	£94
Hawk V9	Wild Vision	£199
– A3000 version	Wild Vision	£278
iImage (Sharp JX-100)	Irlam	
– for A5000		£490
– for other computers		£589
Image Scanner	Iota	£383
– Colour upgrade	Iota	£148
– Fast parallel card	Iota	£98
– Lighting unit	Iota	£91
i-Scan 200	Irlam	£539
i-Scan 400	Irlam	£589
Pineapple Colour Video Digitiser	Pineapple	£195
– A3000 boxed	Pineapple	£230
ProImage (Epson GT6000)	Irlam	
– for A5000		£989
– for other computers		£1089
Scan-Light A4	CC	£277
– with Sheet Feeder	CC	£360
Scan-Light 256	CC	£190
– A3000 internal	CC	£190
Scan-Light Professional	CC	£565
– as above + SCSI interface	CC	£699
SnapShot Colour Video Digitiser	Lingenuity	£195
– A3000 version	Lingenuity	£275
Spectra	RISC	£545
– A3000 Internal	RISC	£545
– A3000 External	RISC	£565
Vision Digitiser	HCCS	
– Mono		£47
– Colour		£79
– A3000 External Mono		£62
– A3000 External Colour		£92
– A3000 Internal Mono		£49
– A3000 Internal Colour		£79

I²C PRODUCTS . . .

AnDi Oddule	Baildon	**£30**
I²C Adaptor (needed unless you already have an I²C socket)	Baildon	£10
I²C SWI (enhanced IIC_Control)	Baildon	£15
– bought with Oddule		£5

SEE US AT THE BETT SHOW – OLYMPIA – 20TH-23RD JANUARY



AUTHORISED ACORN DEALER

ICS (Ian Copestake Limited)

Dept B37, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007

E&OE D61 92OC22

LICENSED CREDIT BROKER



ideA'92

ideA'92 is the name of a new generation of IDE interface cards from ICS, fully compatible with RISC OS 2, 3 and 3.1. Unlike other makes, Internal Hard Disc Upgrades from ICS will fit neatly inside the new A3000 Series computers.

With **background mode** operation, even our 8-bit A3000 Series internal interface is producing speeds in excess of 1 Mb/sec with certain hard discs. 1.6 Mb/sec is possible with our 16-bit interfaces. Compare that with the competition!

Not one, not two, but three levels of **password protection** provide the security your data really deserve.

Hard discs can have **partitions** so they appear as separate drives, with different protection levels if required.

Almost **limitless expansion** is possible via the I²C port which most of our cards have always included as standard.

A3000 Series Internal 2½" Upgrade* or A300/400/500 2½" 'Hard Card'*	20 Mb	£212
*These are different products – please specify which you require	60 Mb	£349
	80 Mb	£449
	120 Mb	£549
A300/400/500 3½" Internal Upgrade	40 Mb	£210
	80 Mb	£275
	100 Mb	£305
	200 Mb	£499
	340 Mb	£775

A very special offer from ICS!

A3010 'Family Solution' + 20 Mb Hard Disc	£599
As above with 2 Mb ram	£645

ICS has always led the field in IDE systems for Acorn computers. You can buy our products with confidence, either direct from us or from any Acorn dealer who values quality as well as price. The above examples of our range are all available as this goes to press, and include all the *ideA'92* features. External options are also available, but may not yet include all the features described. Please contact us for the latest information.

Prices are for complete upgrade kits and exclude VAT. Carriage is free on UK prepaid orders.

IMPORTANT NOTICE If you have version 2.5x of our IDEFS, please telephone 0274 580519 for some important news. To see which version you have, type Help IDEFS at the command line. If it starts with 2.5, call us now.

ICS (Ian Copestake Limited)
Dept B37, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET
Tel: 051-625 1006 Fax: 051-625 1007





COLOUR CARDS ARRIVE AT SHOW

ONE highlight of the BAU Show was the release of two new enhanced colour graphic cards. The first came from State Machine, with its G8 range, the second from Computer Concepts with the Colour Card.

At a glance, both designs are remarkably similar but vary slightly in detail. The different camps have, however, implemented different software drivers. One difference, for example, is that standard Risc OS screen modes are passed through by the CC card but emulated on the G8.

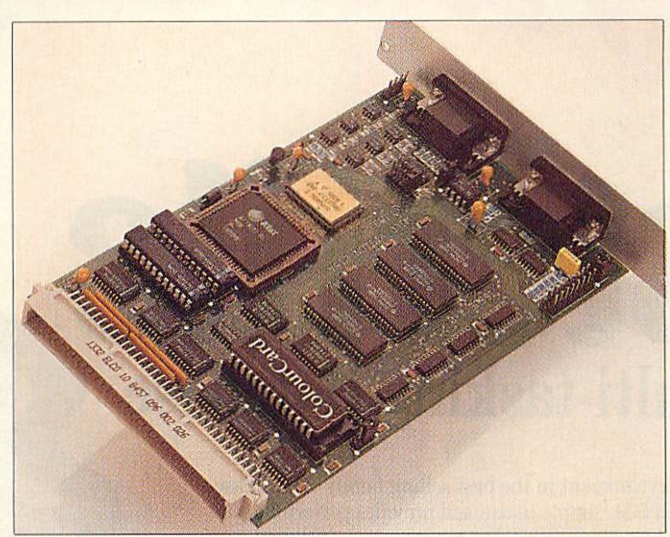
Common features of both cards include colour 24-bit palettes (which can give 16.7 million colours) and large memory screen modes. They also both feature high resolution screen modes in up to 256 colours which are both Risc OS-compatible and flicker-free. Finally the both provide true 256 grey-scale modes.

Basically this means that the cards provide fully usable 256 colour standard modes. Non-desktop 64K colour modes are also possible on the CC card and the G8 Professional.

State Machine now has two G8 versions: the G8 plus at £249+VAT and the G8 proffessional at £349+VAT. The standard G8 was sold at the show for £249 but has already been dropped from the range.

The Colour Card from Computer Concepts is priced at £249 + VAT.

Full details of both cards can be found in next month's *BBC Acorn User*. Meanwhile contact Computer Concepts on (0442) 63933 or State Machine on (0582) 483 377.



Cimputer Concepts' ColourCard adds shades to your screen

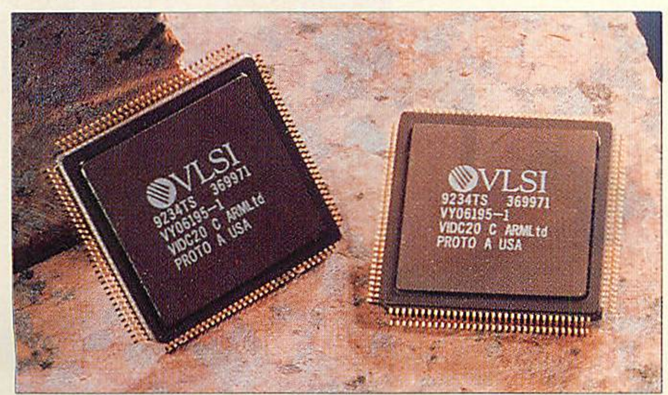
VIDC20 ANNOUNCED

ARM Ltd has at last released the first public details of the latest Arm video and sound chip, VidC20.

Acorn's marketing director Mike O'Riordan told *BAU* that the VidC20 is the first of a new generation of high performance chips to be incorporated into future Acorn products.

The VidC20 has key advantages over the VidC10 currently used in all Acorn Risc computers. These include an increased colour palette – from 4096 colours to 16.7 million in a 24-bits per pixel mode – and there is even a 32 bits per pixel mode with the extra eight bits for external data; two audio options are available.

Arm Ltd sees the Vidc20's versatility as attractive to a wide range of markets from PC graphics adapters and LCD portables to Unix X-terminals and specialist multimedia equipment.



Arm Trek: the next generation?

ARM RACE

LAST month Simtec promised an Arm3 upgrade, with an onboard socket for the planned Floating Point Accelerator chip. This example has now been followed by a number of rivals, including Ifel and CJE Micros.

Users of CAD and ray-tracing applications in particular could benefit from the FPA.

But some, like Aleph One's Alex Van Sommeren, are playing down the importance of FPA support at this stage.

'FPAs will not be available for a long time yet,' he told us, 'so Aleph One will concentrate on a better solution based on the newer Arm600 chip plus an FPA. We're going to produce a processor upgrade with better integer performance as well as the option of floating point acceleration.'

At least two other big Acorn developers have considered the an Arm600-based upgrade, but were dissuaded by the cost of chips.

NEWS IN BRIEF

● PDK Technologies has taken over the marketing of Helix Basic, a modified BBC Basic designed for user-friendly construction of Risc Os desktop applications. The company is run by Helix Basic's author Phil Kent, who says that the program has undergone a major facelift in recent months. Helix Basic was previously marketed by Craddock Computer Services. PDK Technologies is on (0525) 403 541.

● At the same time as Acorn announce their encouraging financial results, arch-rival Research Machines announced that 120 of its 600 staff were to be made redundant. It is the first time in RM's 19-year history that redundancies have been made.

● *BAU* reader Andrew Timmes, aged 14, wrote to tell us that he is forming the Children's Acorn User Club. Andrew expects his new club to include a monthly magazine, occasional software discs and possible competitions and special offers. To join the Children's Acorn User Club all you need to do is send Andrew a SAE to 109 Woodland Drive, Cassiobury, Watford, WD1 3DA.

● *British Birds* is now available on CD-Rom at a price of £150 plus VAT. The software includes information on every single avian species within the British Isles and features some impressive Replay clips, including a kingfisher plunging into water and emerging with mission accomplished. It comes from Interactive Learning Productions. on (091) 261 1255.



● *Techwriter*, the wordprocessor for scientists, can now save equations as *Draw* files. For more details call (0533) 546225

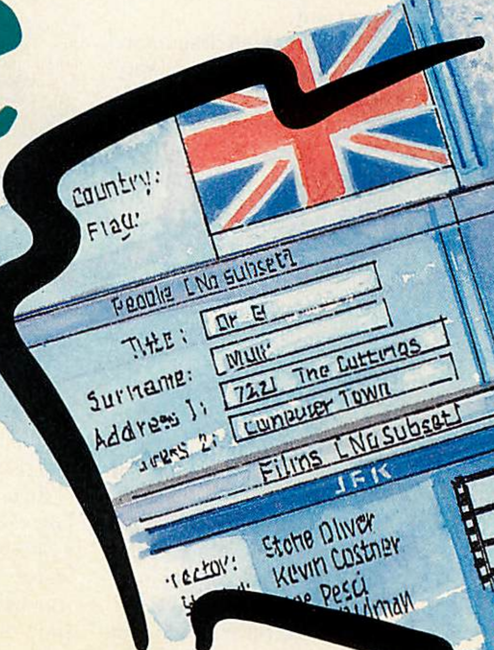
The Outstanding New Database!

VERSION 3

For all Acorn 32-bit RISC computers

Masterfile

Powerful Multi-tasking Database



Masterfile version 3 is the latest development in the best selling family of database programs for Acorn computers. It is fast, simple to use and provides powerful data management facilities suitable for home, education and business use. Included amongst its many features is a very comprehensive indexing system allowing data to be accessed in any order. In addition, subsets may be created allowing access to just those records which match the search criteria. Both indices and subsets are updated automatically when records are added, modified or deleted. The report generator allows databases to be printed in card or spreadsheet format, and provides full label printing facilities.

- **Fast,multi-field indexing**
- **Multiple subsets**
- **Password protection for data security**
- **Global calculations across all or part of the database**
- **Multi-line fields**
- **Optional toolbox with buttons to step through records**
- **Calculation fields based on values in other fields**
- **Import text and pictures into fields by simple drag operations**
- **Import and export CSV, TSV and ASCII data files**
- **Range checking data entry**
- **Card designer allowing complete freedom for data entry screens**
- **Re-structure database at any time**
- **Up to 255 fields of 255 characters**
- **Field types include: text, integer, decimal, date, picture and calculation**

Supplied with sample databases, and a user guide containing a step-by-step tutorial and reference section describing all the facilities provided.

Price **£49**
plus VAT

Available from all good dealers or direct from RISC Developments
(please add £2 carriage)



RISC Developments Ltd.
117 Hatfield Road, St. Albans, Herts. AL1 4JS
Tel: (0727) 40303 Fax: (0727) 860263

Masterfile in Education
Masterfile 3 has been designed in conjunction with IT advisors and is available at a special educational price. A site licence for 30 users is available priced £245. Please phone for further details.

A fast easy-to-use general purpose database with a superb range of powerful features at an affordable price

WORDZ AIMS TO MAKE LIFE EASY

WORDZ, the new word processor from Colton Software, was on display at the *BAU* show. The main features of *Wordz* are that the display is completely wysiwyg and the program was designed with ease of use as a priority.

A feature borrowed from the Microsoft Windows and Apple Macintosh is the button bar; a line of iconised buttons which perform functions like justification and cut and paste at a click of the mouse, so avoiding the use of menus. Styles are supported for manipulating customised text presentation and there is a table editor.

Standard Acorn-compatible graphics files can be dragged and dropped into *Wordz* documents and resized once they are inserted. A 58,000 word spelling checker is also supplied with a user-dictionary facility.

Wordz: ADFS::RJM5000.$.test.adextract

Apply bold to selection

editor ideal for reports, worksheets and forms.

Features

- File filters for import and export of standard text file formats (including PipeDream)
- Powerful style editor to control and save your designs.
- Simple drag and drop process to import and resize graphics in standard Acorn file formats
- Button bar provides instant access to editing operations and customised styles

Compatibility

	Minimum configuration	Ideal configuration
RAM	1MB	2MB or more
Disc	Floppy disc or Econet	Hard disc or fast network
Monitor	Low resolution	Multi-scan

Wordz is aimed at making word processing easy

Although, taken item-by-item, the *Wordz* specification list isn't revolutionary, the producer, Colton Software, is confident that the user-friendliness of the program is something special. As we went to press, the price and release date were not confirmed.

For more information on *Wordz*, contact Colton Software on (0223) 311 881.

GOOD YEAR FOR ACORN

ACORN has turned in its most encouraging set of financial results ever, with a turnover of £21 million for the first six months of 1992, compared to £18 million for the same period in 1991. And last year's net loss of £420,000 has been turned into a net profit of £511,000.

None of Acorn's latest computers, the A4, A3010, A3020, A4000 or the Psion-based Pocket Book arrived in time to contribute any sales income to these results. So it will be interesting to see if Acorn gets a further boost from these products during the important months leading up to Christmas.

Managing director, Sam Wauchope, said that sales continued to improve and the recent product launches meant that Acorn could once more look to the future with confidence.

PUBLIC KEY

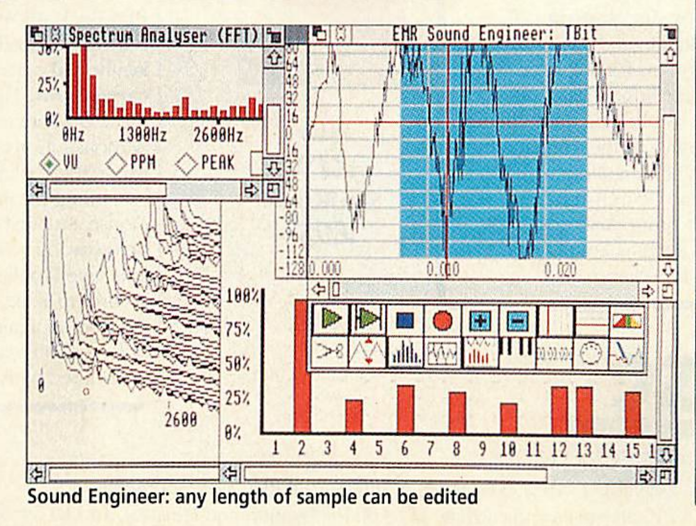
IN October's *BAU* we featured an article by Nick Craig-Wood, looking at the maths of very big numbers, and cryptography. For those interested in this, an organisation worth contacting is The Public Key.

It specialises in cryptography and publishes a free magazine. It has also produced encryption software for the Arc. Contact The Public Key at 'Waterfall', Uvedale Road, Oxted, Surrey, RH8 0EW.

ENGINEER SAMPLES SOUND

ELECTROMUSIC Research (EMR) has released a new sound sampler editor for the Archimedes called *Sound Engineer*. Any length of sound sample can be edited and the software is compatible with either EMR or Oak sound sampler hardware.

Samples can be converted to various standard Arc music file formats. *Sound Engineer* was designed to fit in with National Curriculum key stages 1-3 in music and science. Contact EMR at 10, Mount Close, Wickford, Essex. Tel: (0702) 335 747.



Sound Engineer: any length of sample can be edited

NEWS IN BRIEF

● *Acorn User* recently sat in on a Steve Furber lecture at the Cambridge University Computer Laboratory. The topic was Computing Without Clocks, an introduction to the Amulet asynchronous Arm project at Manchester University.

Furber, who co-designed the original Arm chip, revealed that the project is on schedule to test prototype chips by around March next year. He also made some calculated guesses about how the chip would turn out.

The chip will be roughly 50 percent bigger than an Arm6-series chip and Furber expects the performance to be double that of the Arm6, yet the new chip will probably use just a fifth of the Arm6's power. The exact Amulet performance won't be known until the first chips are actually tested.

● Cumana is to incorporate the latest Sony CD-Rom technology into its multimedia products. According to Cumana's managing director, John Simnett, new Sony-based CD-Rom drives will offer improved performance. The first such products will be the Cumana 500 Series drives. For more details, contact Cumana on (0483) 503121.

● New printer drivers for Risc OS 3 users have been released by Ace Computing. New features include 24-bit colour handling, automatic background print spooling and colour separation.

The spooling function, *AutoSpool*, directs the printed output to a temporary file which is then queued up for the printer on the background. This means that the user regains control of the desktop very quickly.

PrintSeps offers CYMK (cyan-yellow-magenta), progressives and spot colour printing. It's possible to build full colour prints using a monochrome printer which can use different coloured inks, or you can enhance the black output of a colour printer such as a Hewlett Packard DeskJet 500C, for example.

A single user *PROdriver* license costs £47, and existing Ace printer driver users can upgrade for £29.38 plus VAT. Site licenses cost £95. Ace Computing is at 27, Victoria Road, Cambridge CB4 3BW Tel:(0223) 322 559.

RISC Developments' Software

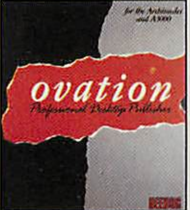
DESKTOP PUBLISHING

Ovation

Ovation is the easy-to-use desktop publisher acclaimed for its superb range of features that are easy to learn and instinctive to use.

Ovation provides a complete solution for all document generation; from simple single page letters to entire books with graphics. Now, in response to customer feedback it has been enhanced further, setting even higher standards of quality and value.

Please write or phone for our detailed Ovation brochure.



Price £99 Site licence £475

COMMUNICATIONS

Hearsay

Hearsay II is the most advanced communications package available on Acorn systems. It is multi-tasking and RISC OS compliant and suitable for both beginners and advanced users.

Hearsay provides high quality VT320, VT100, Campus 2000, ANSI, Viewdata, Minitel and Tektronix terminals. File transfer protocols include: Kermit, Xmodem, Ymodem, and Zmodem. Other features include: auto logon directory, script language, macro processor, and modem drivers for most popular modems.



Price £75 Site licence £375

FONT MANIPULATION

TypeStudio

A complete text manipulation package ideal for producing professional quality adverts, posters, banners, logos, etc. Text may be flowed along lines and curves, or moulded into almost any shape.

A wide range of interesting effects can be used to enhance the design further. These include: wall, floor and graduated shadows, slant, 3D, mirror and plinth.

The package includes 7 fonts and a 64-page user guide with many worked examples.



Price £45 Site licence £75

HARD DISC BACKUP

Hard Disc Companion

Provides a structured approach to backing up hard discs to floppies, and the recovery of files in the event of disc failure or accidental deletion.

Hard Disc Companion uses sophisticated compression techniques to backup hard discs quickly and efficiently. It supports Full and Incremental backups and allows you to specify in configuration scripts exactly which files are to be backed up or ignored.

Separate utilities are provided to recover all or selected files.



Price £45 Site licence £225

SYNONYM FINDER

Desktop Thesaurus

Desktop Thesaurus now contains over 17,250 keywords and nearly 182,000 carefully chosen alternative words. It is an ideal tool for developing language skills.

The synonyms for a chosen word are listed according to parts of speech, and by clicking on them the user can browse further through the thesaurus. When an alternative word is found, it can be transferred instantly into other desktop applications such as Edit, Ovation, Impression, Pipedream etc.



Price £19 Site licence £95

MOUSE RECORDER

PlayBack

PlayBack allows recording in real-time of all mouse and keyboard operations as they are carried out. This new package is an ideal tool for creating demonstrations of programs which run in the desktop.

During a computer session, all mouse and keyboard operations may be recorded with a text commentary and saved to file. Playing back a recording is exactly like carrying out the session again. Includes a play-only version which may be freely distributed with recordings.



Price £19 Site licence £95



All software is available from good dealers or direct from RISC Developments.
Please add VAT to all prices and carriage of £3.00 for Ovation and Hearsay, and £2 for other software.
Please write or phone for details of educational prices and site licences.

RISC Developments Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

ARCHITECH ADDS TEXTURE

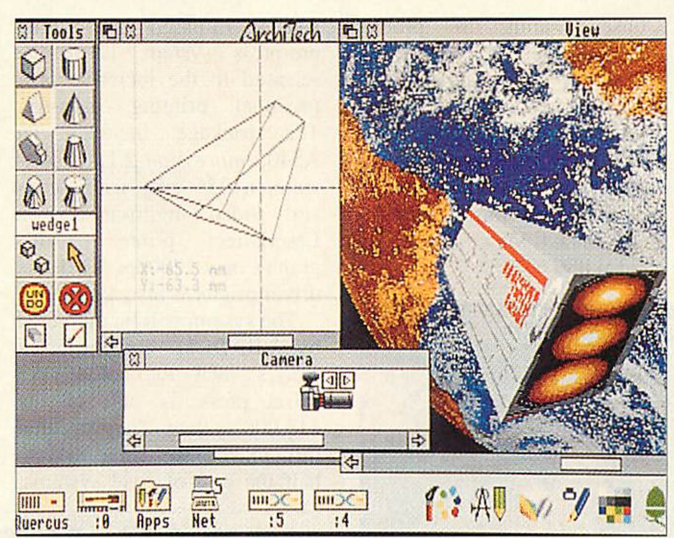
IMAGINE a 3D modelling system which allows you to fill polygonal surfaces with specially mapped sprite images, and you get an inkling of what *Architech* from ExpLAN is all about.

Intended for professional design, *Architech* offers a 3D editor with an on-screen 3D viewer window with orthographic or perspective modes.

Sprite images can be mapped on to the shapes which make up the surfaces of 'solid' objects. Images can use textures such as wood-grain surfaces, stone, metallic or even abstract full colour images. Final designs can then be 'unfolded' and printed out as nets which can be used to construct physical models.

Architech can be described as the next generation development on from *Tabs*, ExpLAN's established three dimensional modelling package.

Architech will be released in the first quarter of next year. For further information on the package, contact ExpLAN (0822) 613868.



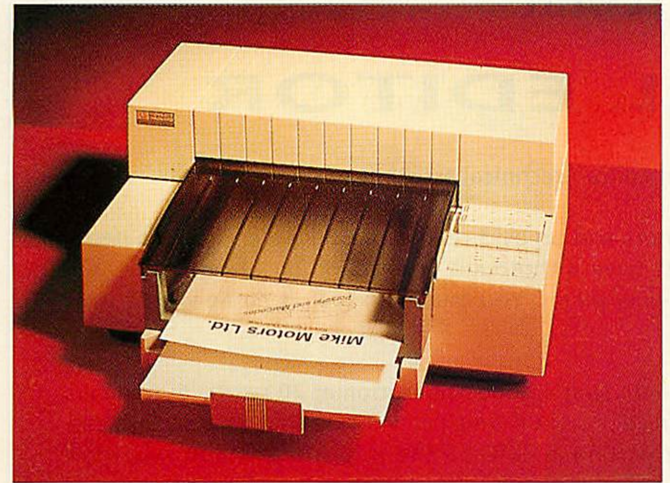
Achitech is aimed at the professional designer

BEST OF BOTH WORLDS

HEWLETT-Packard has producing the HP DeskJet 550C which has both colour and true black and white printing heads built-in.

HP's earlier DeskJet colour printers were criticised for producing poor blacks as no true black ink printing was possible, short of physically swapping the ink cartridges.

The list price for the 550C is £689, Contact Hewlett Packard on (0344) 369222.



A new member of the Deskjet series

WHO'S THE FASTEST?

COMMODORE's latest competitor to the Acorn A3010 is the planned Amiga A1200 for which Commodore is making some bold claims. One official quote says: 'The Amiga 1200's 32-bit processor offers speed to surpass anything else on the computer games scene.'

Well, since their 14MHz processor is actually slower than the baseline 8MHz Arm3, we at *BAU* can only wonder how Commodore arrived at this conclusion. The Acorn A3010's new Arm250 processor is over 50 percent faster than the chip in the A1200.

ALL IN ONE

ARXE Systems has combined its high density PC-compatible floppy disc interface with a SCSI controller in a new modular system, which it has called the Incremental Interface range.

This means you can start off with just the HD floppy interface, called the Alpha, and later upgrade to SCSI as and when required. The Alpha HD high-density floppy interface endows earlier Arc models with the same high density floppy disc interfaces as the latest Acorn models.

The entry price is £159+VAT including a high-density floppy drive. Without a drive the price is £109+VAT.

The Alpha Dual adds a 16-bit SCSI (Small Computer Systems Interface) controller suitable for fast hard discs, scanners, CD-Rom drives and other devices. The Alpha Dual card, including the HD floppy interface, is priced at £199+VAT.

To upgrade from a floppy-only Alpha to a SCSI dual costs £50+VAT. Arxe supplies a range of drives to suit.

For more information, contact Arxe Systems Ltd at PO Box 898 Dept 5, London E7 9RG, or telephone: 081-534 1198.

NEWS IN BRIEF

● The latest version of the *Squirrel* database system from Digital Services is now available: version 1.20. A large number of changes have been made, including international dictionary sorting, revised defaults, preserved filetypes stored on Econet fileservers and a general upgrade to !SQLImport. Contact Digital Services for a more comprehensive list. The upgrade is free to existing users.

● Also from Digital Services is *Netgain*, a new Archimedes Econet server system that lets files load across the network at hard disc speeds. DS says *Netgain* is compatible with most up-to-date Econet installations.

Users simply click on a *Netgain* filer icon to reveal an ordinary-looking file directory. A server card and software for ten stations costs £200+VAT with additional ten-user packs priced £100+VAT. For more details, contact Digital Services on (0705) 210600

● Acorn will be at the Computer Shopper Show this year, with a special Acorn Village exhibit. It will have a similar video theatre to the one featured at the *BAU* Show and will be running demos. On the Saturday of the show, athletes Linford Christie and Colin Jackson will be guests on Acorn's stand.

The show takes place from 19-22 November at the Grand Hall, Olympia. The ticket hotline number is (071) 3738141.

● Cambridgeshire Software House has announced its popular humanities program, Frontier 2000, is to be published on CD-Rom exclusively for the Archimedes. The CD-Rom will cost £175+VAT. Contact (0480) 679 45.

● Acorn's events coordinator, Liz Clifford, has won an unusual prize; the use of a mobile exhibition unit for two weeks.

The prize was provided by Gloucester-based Ross Gordon Communications and was accepted by Acorn's marketing manager, Simon Lovesey.

It wasn't clear how Acorn won the prize, but Simon Lovesey said it was Acorn's intention to use it in a UK tour to demonstrate Acorn products.

PRINT AND CONSERVE

THOSE used-up laser toner cartridges can now be to good use with a new Con-Serv recycling program. Con-Serv provides refills for empty cartridges and the company has also pledged to buy an acre of threatened rain forest for every 30 empty toner cartridges that it receives.

Conserv aims to protect 250,000 acres of tropical rain forest as a result of the scheme. And as if that wasn't enough, Con-Serv points out that its recycled products are up to 60 percent cheaper than originals. For more information contact Marc Allenet on (0734) 886 600.



Con-Serv launches its environment-friendly initiative

NEW DEAL

AN Acorn-based professional pre-press system, is to be released to the lucrative professional printing industry. The package includes an A540, *Impression 2* DTP software, a 256 grey-scale scanner, video digitiser and a LaserDirect printer. Calligraph's new 1200dpi A3 direct driver printer is also an option.

The system will be marketed by A.B. Dick, and the company's own two-colour A3 offset press, is part of the £13,000 system. They say that this makes the total system half the cost of rival systems.

ARM3 PLUS

GROUND Control surprised many at the *BAU* Show by showing a 35MHz Arm3 chip. The good news is that this is the fastest Arm3 chip in current production. The bad news is that there are only 200 of the new chips around with no immediate plans to produce any more.

If the upgrade proves reliable, it will be sold for £250 a unit, so Ground Control shouldn't have much trouble shifting them; 20 orders were taken at the show. For more information, contact Ground Control on (0635) 524 008.

KODAK CUTS PRICES

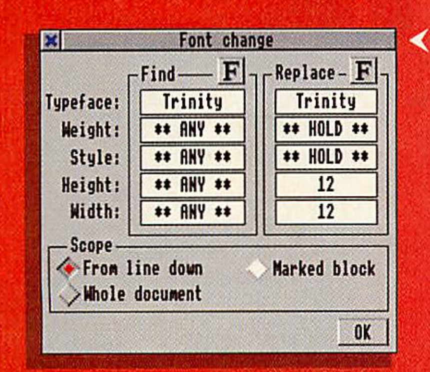
KODAK has reduced the prices of its Diconix ink-jet printers. The Diconix 701 portable drops to £399 and the 180si lightweight portable is now £50 cheaper at £249. The 330C colour printer is also reduced £50 to £749. These prices will inevitably be discounted by dealers. Contact Kodak on (0442) 61122.



Diconix: low-price lightweight

MEET THE NEW ADDITION TO THE PENDOWN FAMILY

Longman Logotron introduces a brand new word processor, with all the ease of use of the famous PenDown and with powerful new features, including:



FONT FIND AND REPLACE for easy changing of any attributes of a font throughout the document.

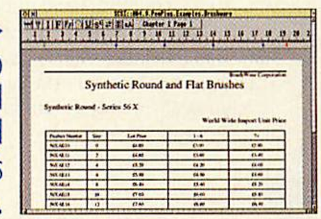


TABLE EDITOR to create, reorganise and perform sum and percentage calculations on tables.

LABEL PRINTING on any kind of RISC OS supported printer.

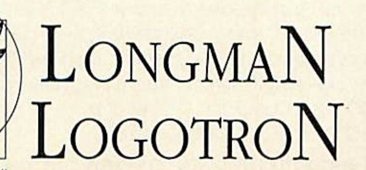


MASTER PAGES (single or double) and chapters, for creating headers and footers.

ALSO INCLUDES an outstanding new DICTIONARY with over 65,000 words and check-as-you-type facility; MAILMERGE with *!Mail*, a custom name and address database; FLEXIBLE PRINTING CONTROL with automatic booklet printing; CONTINUOUS SCROLLING DOCUMENTS so you don't have to turn pages; VISUAL RULER CONTROL with ruler copy and move; and all the other features which made PenDown easily the top selling word processor for schools.

Archimedes PenDown Plus

RRP £79
Site Licence £400



124 Science Park
Milton Road
Cambridge CB4 4ZS
Tel (0223) 425558
Fax (0223) 425349

BEEBUG

The Archimedes Specialists

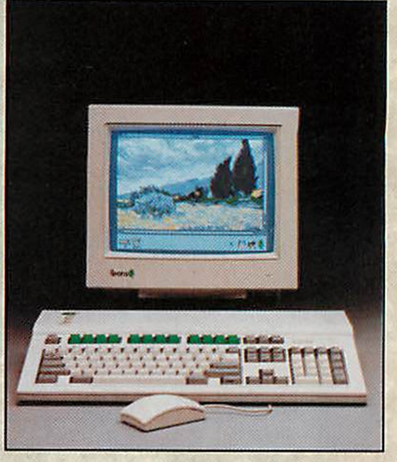
Beebug are one of Acorn's largest dealers. We have a large showroom in St. Albans (close to the M25 and M1) and an efficient mail-order service specialising in sending Acorn Computer equipment to homes throughout the country. Additionally, we have an excellent technical support team to provide any advice and help that you may need. Beebug are not here today and gone tomorrow. You can trust us, we have been working with Acorn for over 10 years now!
Our sister company, RISC Developments, is also well known for producing quality software and hardware add ons for the Acorn range, as well as the RISC User magazine.

The New Line Up

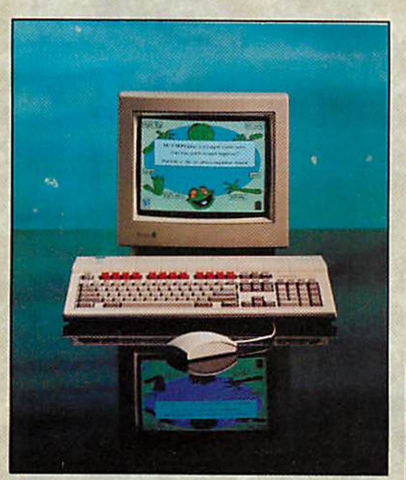
We now have great pleasure in offering the new and exciting line up of computers from Acorn. All of these systems feature RISC OS 3.1, the new multi-tasking operating system and are supplied with a mouse, stereo sound, 2Mb (unformatted) floppy drive, serial and printer ports. Additionally, they will all run any of the standard Archimedes software titles, of which there are now over 2,000.

A3010

This system represents an incredible breakthrough for Acorn. For only £499 INC VAT you can now have the full power of an Acorn RISC OS computer. This system is based around the new ARM 250 processor, which typically offers a 50% speed increase on ARM 2 systems (A3000/A310/A400). 1Mb RAM (upgradable to 2Mb), 2 joystick ports and TV modulator are all built in to the A3010. It is supplied with EasiWord word processor, Audio Training Tape and Quest for Gold Game in a pack called The Family Solution. Alternatively, the A3010 is available in The Learning Curve package. This also includes a RAM Upgrade to 2 Mb, Colour Monitor, PC Emulator, Guide to the National Curriculum and Genesis Collection.



0172g	A3010 Family Solution	£424.68
0182g	Colour Monitor for A3010	£220.00
0173g	A3010 Learning Curve	£680.00



0151g	A3020 FD Colour	£749.00
0152g	A3020 FD Multi-scan	£799.00
0155g	A3020 HD60 Colour	£899.00
0156g	A3020 HD60 Multi-scan	£949.00

A3020

This system is targeted towards the schools. Along with the ARM250 it offers 2Mb RAM (upgradable to 4Mb), colour monitor (or multi-scan) and optional 60Mb internal hard drive.

A4000

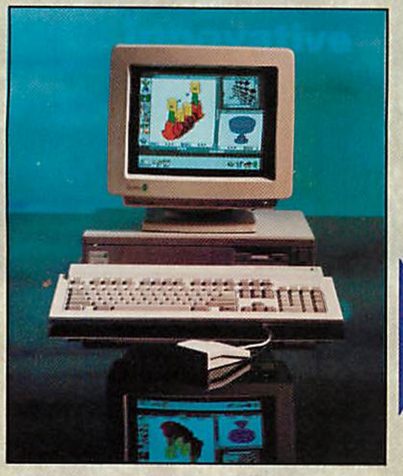
This system is supplied in a slimline version of the A5000 metal casing. It has a separate PC style keyboard, the ARM250 processor, 2Mb RAM (Upgradable to 4Mb), colour monitor (or multi-scan) and an 80Mb hard drive. It is also available in a Home Office pack which includes Easiwriter wordprocessor, Audio Training Tape and Desktop Database.



0227g	A4000 Colour	£949.00
0234g	A4000 Multi-scan	£999.00
0209g	A4000 Home Office Colour	£999.00
0215g	A4000 H. Office Multi-scan	£1049.00

A5000

This now represents even better value for money. The A5000 features the ARM3 processor, 2Mb RAM (upgradable to 4Mb), an 80 Mb hard drive and multi-scan monitor. It is available in a Learning Curve bundle which also includes Acorn DTP, 1st Word Plus wordprocessor, Pacmania Game, PC Emulator and Genesis Plus. A separate version of the A5000 is also available (but not in the Learning Curve), which includes 4Mb RAM and 120 MB hard drive as standard.



0211g	A5000 2Mb HD80 Multi-scan	£1399.00
0206g	A5000 4Mb HD120 Multi-scan	£1599.00
0213g	A5000 Learning Curve	£1445.96

A4 Portable

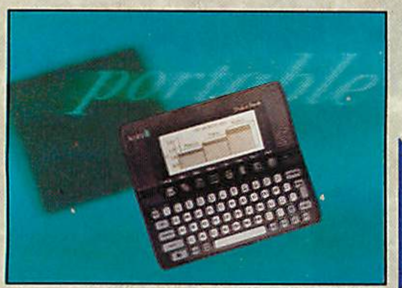
This is effectively an A5000 in a notebook format. An excellent machine with ARM3, 2Mb RAM (upgradable to 4Mb) and optional 60Mb internal hard drive. (Free PC Emulator with 60Mb version until Christmas.)



0317g	A4 2Mb FD	£1399.00
0316g	A4 4Mb HD 60	£1699.00

Acorn Pocket Book

This is the surprise addition to the range. It is not RISC OS based and has none of the features shared by the rest of the systems. It has built-in applications of wordprocessor, spreadsheet and database with 256K RAM and optional 4Mb Solid State Disc. An optional link kit enables it to transfer data to any Acorn RISC OS computer.



0390g	Acorn Pocket Book	£212.72

RISC OS 3 Upgrades

Upgrades to the new version of RISC OS are now available. This will certainly become the new standard for all Archimedes machines. A3000, A540, A400/1 series computers need only code 0888d. A305, A310, A440 systems will also need a Hardware Upgrade Kit (dealer fit) code 0887b. A5000 owners need a ROM only kit, code 0889b. If you are unhappy about fitting RISC OS 3 yourself, we are pleased to offer a free fitting service to customers. Please phone to arrange this.

0888d	RISC OS 3 Complete	£41.70
0889b	RISC OS 3 (For A5000)	£16.17
0887b	Hardware Upgrade Kit	£25.53

Educational establishments, please phone or write for quotation.

For More Information

Please write or phone for more information or an Acorn brochure. Additionally we would be pleased to send you a complimentary copy of our 52 page full colour catalogue on just about everything for the Archimedes computer.

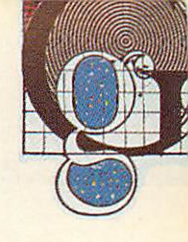
Ordering Details

These are all new products so please call to check stock availability. Orders received will be dealt with in strict rotation and cheques not cashed or credit cards debited until your system is actually sent.

Prices are shown exclusive of VAT.

Carriage: RISC OS please add £3.00, computers please add £9.00.

BEEBUG Ltd. 117 Hatfield Rd. St.Albans. Herts AL1 4JS Tel. 0727 40303 Fax 0727 860263



REPLAY IT

ACORN'S simultaneous video and sound system, Replay, is making a lot of headway into the multimedia market. The recent Interactive Learning '92 conference saw Acorn's Malcom Bird and Roger Wilson demonstrating the capabilites of Replay to an utterly impressed audience.

A number of other companies were showing their wares, including American big names IBM and Apple. According to visitors to the conference, Acorn's presentation far outshone those of the competition and the general consensus was that Acorn could (and will) easily compete with the 'giants'.

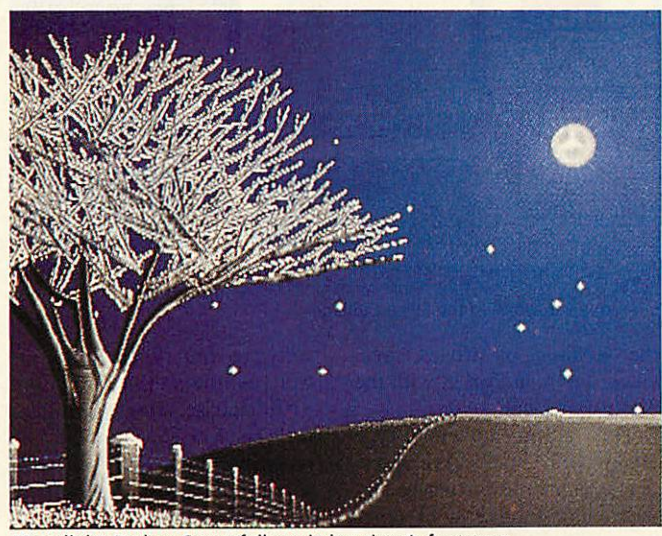
Anyone with access to the necessary equipment can produce Replay files, although the cost of a professional, broadcast-quality Betacam video is likely to set you back around £15,000. There's also the small matter of where to store your captured video/sound before compression; a drive in excess of 600Mb capacity is recommended for development.

PIC OF THE MONTH

WE have more 'real art' this month in the form of *Moonlight*, by Bethan Crerar, sister of Leila Crerar who created last month's picture. *Moonlight*, like last month's picture, was produced on Minerva's *Atelier* art package and makes extensive use of the graded fill tool to excellent effect.

BBC Acorn User is pleased to accept any contributions to the Graphics Page, no matter what machine they have been created on (as long as it's an Acorn). Pictures can be hand-drawn, ray-traced, or produced by any other possible method.

Pictures needn't be only sprites. *Draw* files, *ArtWorks* files or any other 'graphical format' will be considered for publication. Submissions should be sent to the usual address and marked 'Graphics Page Gallery'.



Moonlight: Bethan Crerar follows in her sister's footsteps

ARTWORKS ARRIVES AT LAST

AFTER months – even years – of speculation, Computer Concepts' *ArtWorks* design package is finally with us.

Like *Impression*, *ArtWorks* comes in a rather neat, specially designed box that contains a manual, a dongle (with dongle dangler) and 15 discs. The actual *ArtWorks* application comes compressed onto one (and a bit) of the discs with the other 19 being filled up with an assortment of clip art, plus a staggering 220 outline fonts.

A couple of small utility programs are also supplied on the discs, including a rather neat little application called *FlipTop*. Hot keys can be used to increase or decrease the number of colours required while keeping the resolution the same. Pressing CTRL- in mode 12 (640x256 with 16 colours), for example, would change the desktop to mode 15 (640x256 with 256 colours). This is much easier to follow than changing mode with the conventional Palette tool present in Risc OS.

Artworks now contains all the features promised in the original specification, and like their DTP package *Impression* it surpasses virtually any other program in its catergory. Experienced artists from other platforms are saying that it easily outperforms *Corel Draw* on the PC or *Adobe Illustrator* on the Apple Macintosh.

An early review of *ArtWorks* was printed in the April 1992 issue of *BBC Acorn User* which covered all the main tools. Since that article, *Artworks* has remained pretty well the same program, with a few features added or tidied up. Blending (In-betweening) is now present, as is full text manipulation.

Many of the features in *Artworks* are designed to be dynamic, meaning that changing one part will affect others. A simple example is fitting text onto a curve, where text will automatically be repositioned as you change the shape of the curve.

ArtWorks' 220 outline fonts include a whole range of different styles from sans-serif typefaces suitable for body text, to ornate headlining and decorative fonts.

The selection of clip-art is extensive and includes the 'now-famous' Mini Cabriolet featured in Computer Concepts' adverts. As well as demonstrating the capabilities of *Artworks*, it also shows how different effects such as shading are achieved.

Computer Concepts can be contacted at Gaddesden Place, Hemel Hempstead, Herts. HP2 6EX.

NEWS IN BRIEF

● A number of new smArt files have been released by 4Mation for its *smArt* 'Linked-graphics' program, including *Fantasy*, a set of goblins, dragons, and other beasts. *SmArt*, the program, allows the user to build their own clip-art from a group of different bits, rather like a photo-fit picture. The new files retail at £18.80 each. Further details can be obtained from 4Mation, 14 Castle Park Road, Barnstaple, Devon. EX32 8PA.

● The public domain drawing package, *DrawPlus* has recently undergone a number of changes and, as a result, version 2.20 has now been released. Compatibility with Risc OS 3 *Draw* files is assured with full support for transformed sprites and text. A text to path feature allows various effects to be added to text such as different line and outline colours. *DrawPlus* 2.20 can be obtained from bulletin boards such as Arcade on (081) 654 2212 or World of Cryton on (0749) 670030.

● With the advent of packages such as Computer Concepts' *ArtWorks* and 4Mation's *Chameleon*, 24-bit colour printer drivers have started to appear. Ace Computing, well known for *Euclid 3D*, has launched a set of new printer drivers called ProDrivers. These allow users to print full 24-bit colour by producing four-colour CMYK separations.

ProDrivers are available from Ace at £47 each. Further details can be obtained from Ace Computing, 27 Victoria Road, Cambridge, CB4 3BW Tel. (0223) 322559.

● A solution for 'home-made' Replay movies is almost ready, courtesy of Irlam Instruments which has been developing real-time video and audio capturing hardware. Once these are available, it will be possible to create Replay films using much cheaper, domestic video hardware. This should result in a rapid increase in the number of Acorn multimedia titles.

Further details can be obtained from Uniqueway, 143 Alansbank Road, Heath, Cardiff CF4 3PQ or, Irlam Instruments, Brunel Institute of Bioengineering, Brunel University, Uxbridge, Middlesex UB8 3PH.



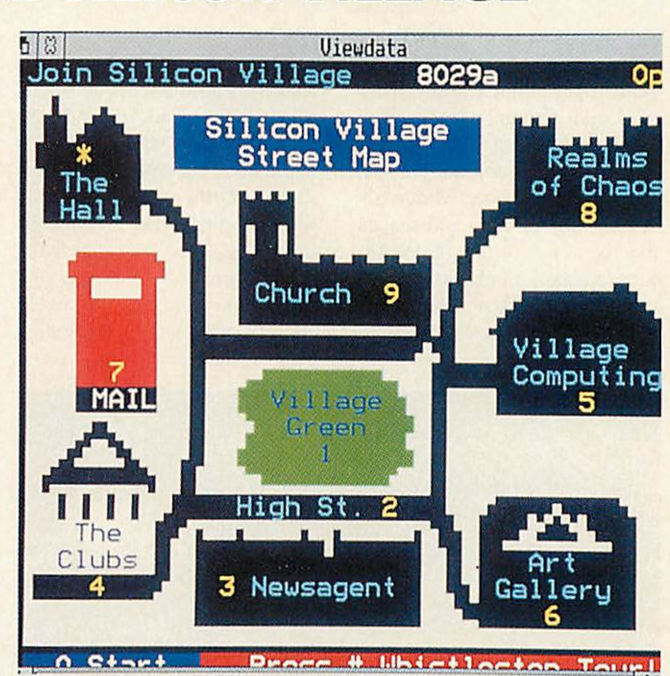
VISITING THE SILICON VILLAGE

SILICON Village is the ViewData system that continues the heritage of Micronet and greatly expands it. With BT local call access in Reading and London, and around the country via the free-access Mercury 5000 local network, it's easy to log on to for most people.

Although the system is divided into convenient areas with country-style names, the content and outlook is definitely up-to-date. There are still some old familiar areas from the Micronet days though, such as the broadcast magazine, *Waveguide*, and the special interest Amstrad computer group Amsters Cage.

The Village Green forms the centre of the system, with the other areas spread out around it. In the Newsagents you can access broadcast and computing news as well as comment from the lighter side. Gossip and non-computer related topics are discussed in the Club, where all kinds of activities from cooking to chatlines take place. The Computing Store caters for all makes of machine including BBC and Archimedes, with downloads and magazine sections.

Each subscriber may run an Art Gallery area just as they could on Micronet, and Silicon Village boasts a 'church' with prayer and study areas and even online services fortnightly! Gaming is available in the Realms of Chaos area, where you can join in with the multi-user game *Avatar*.



Everyone's a friend in the Silicon Village

This is an adventure-type game with spells, treasures, personas and power where you meet and interact with other users. The *Avatar* game runs via an gateway into a scrolling system with Viewdata options.

The British Association of Computer Clubs (BACC) resurfaces from Micronet onto the front page of the host system carrying Silicon Village. It offers affiliated club members low-cost equipment insurance and public domain software library facilities, as well as the online ClubSpot 810 database. The registration fee is £11.75, plus £7.05 monthly. There is a time charge of 2.94p per minute after the first two hours of use each month.

You can try out the demonstration system by calling 081-759 2348 or (0734) 819000 ViewData, using the ID number 4444444444 and the password 4444.

Or contact: The Silicon Village, c/o New Media Services, 8 Evron Place, Maidenhead Street, Hertford, SG14 1PA

GAMES FOR ALL

BULLETIN boards are used mainly for sending and receiving messages, but they can be a playground for games enthusiasts as well, and even help to introduce new games.

One arcade game publisher has recently tested out a new Archimedes version of a game by uploading a pre-publication magazine demo disc to a BBS, and then asking the users to download it, play the game and send back comments on it. Much discussion resulted on the BBS about details of the software protection method used, the level of graphics animation, sound samples, playing key action and suitable types of monitor for the game.

The author and publisher took note of what was said and, soon afterwards, a new demo was released to the BBS that superseded the magazine disc version. An additional enhanced commercial release was promised in response to the clamour from the BBS games enthusiasts for advanced features. The game is *Scorpius*, and should be in the shops for Christmas. The publisher is Arxe Systems Ltd, PO Box 898, London E7 9RG.

ON JANET

THE Joint Academic NETwork (JANET), linking schools and universities, can be now accessed for exchange of email from FidoNet. Special-format address lines are typed into a normal Netmail message which is sent to a gateway destination BBS – one is in the US, which, remarkably, can sometimes deliver messages faster than the UK-based gateway. Even so, there may be a delay of several days between sending and delivery. JANET users can send replies back by using a similar address format.

NEWS IN BRIEF

● LINE3 is a ViewData BBS run by sysop John Kettle. The board is aimed at serious computer users and offers a 'logic support service to the designer/programmer'. On LINE3 you get access to a wealth of varied interests, including a BBC and Archimedes section of information and telesoftware. An unusual feature offered is downloadable weather reports, which taken every 15 minutes directly from a weather station on site. LINE3 BBS can be contacted on (0245) 252512, 7-E-1, 1200/75 Bd (V23).

● Miracom Technology has upgraded its diminutive WorldPort 2496 Fax/Data modem to feature V.42 error correction and V.42bis data compression, giving faster and more accurate transfers. It offers V22bis data communication and also incorporates Group III fax 9600 baud operation, and can run from battery or mains power. Supplied with cables, PC Fax software and BABT approval, the 2496 costs £395. Contact Miracom Technology on (0753) 811180.

● Another FAX/Data modem recently tested is the BABT approved Smartlink M4F. This also offers V22bis data comms with MNP5 or V42bis compression and ClassII fax operation at V.27 and V.29. Class II fax operation means that the M4F is compatible with such Archimedes fax software as *ArcFax*, but it is supplied complete with the *Smartlink* PC fax system software and *Smartlink* comms software, with four manuals, separate power supply and cables. For more details, contact Smartlink on 0734 587788.

● Regarding Demon Internet Services, mentioned in the October feature, the subscription should be shown as £12.50 joining fee + £10 monthly subscription + VAT. We regret any inconvenience caused.

You can contact me with news or information by writing to: David Dade, BBC Acorn User, 101 Bayham Street, London NW1 0AG, or by modem on Arcade BBS, User #2 081 54 2212 or 081 655 4412



The Ultimate Expansion System for the new A3010, A3020 and A4000 computers from Acorn

HCCS have produced the only expansion solution which fits inside these computers allowing the use of up to three Micro Podules

The Multi Podules and Micro Podules will be available on The Datastore and Dyad stands at the Acorn User Show

HCCS Approved Dealers

C. J. Computing
Avon BS9 3AD
0272 624553

Dyad Ltd.
Berks RG1 7UZ
0734 503330

DL Chittenden
Bucks HP5 1BX
0494 784441

Iver Computers
Bucks SL0 9HY
0753 651990

Micro Studio
Cambs CB7 5DS
0353 624997

Newton and Brewer
Cambs CB6 2HY
0353 666011

3SL
Cheshire CW11 0QX
0270 761516

Desktop Projects
Cheshire SK3 0BT
061 4 740778

Fairhurst Instrument
Cheshire SK9 2LT
0625 525694

LMR
Cheshire M33 3HP
061 9628872

Arm Tech
Clwyd CH8 7EF
0352 715840

Kendal Computer Centre
Cumbria LA9 4BD
0539 722559

Cumbria Software
Cumbria CA8 1SW
06977 3779

Computek
Derbyshire SK13 9NU
0457 865953

Minerva Computers
Devon EX1 1EE
0392 410137

Cardigan Electronics
Dyfed AS43 1HD
0239 614483

Datathorn Systems Ltd.
Essex IG10 4QD
081 5084904

ECOS
Essex CO5 8QH
0206 382533

Le Computer
Essex CM3 1QS
0245 362225

Liquid Silicon
Fife KY2 5PN
0592 260512

AJL Electronics
Glos GL1 5DZ
0452 311031

Moray Micro Computers
Grampian AB56 2BJ
054 27377

Alsystems
Hants GU34 5HG
0420 561111

Computer Spares
Hants BH25 6BZ
0425 619748

Fact Systems (Barrow)
Hants SP10 5NY
0264 334811

L.G. Computer Services
Hants SO1 3HL
0703 771399

Micro Technology Support Centre
Hants SO22 6BS
0962 841837

Cannon Computing
Herts CM23 4JH
0279 507727

A.V. Technology
Isle of Wight PO30 5XD
0983 522801

Computereyes
Kent ME14 1EB
0622 751096

City Computers
Lancs LA1 1UG
0524 846886

Editt Computers
Lancs OL14 5PX
0706 818271

Orion
Lancs PR5 3HL
0772 623000

R.T.S. Computers
Lincs. LN8 3AA
0673 844796

Automatic Services
London E17 3NT
081 5211784

Computer Depot
Lothian EH8 9JQ
031 6684146

Kettering Computer Centre
Northants NN16 8ST
0536 410070

Baker and Hudson
North Yorks Y02 1DR
0904 623840

Technology Supplies
Shropshire TF9 1JS
0630 658184

Taunton Micro Centre
Somerset TA1 3TP
0823 336118

Uniqueway
S. Glamorgan CF2 4NN
0222 644611

DPM Electronics
South Yorks S60 5QY
0742 611996

Computer Depot
Strathclyde G1 2JZ
041 3323944

HCCS
Tyne & Wear NE9 5JJ
091 4870760

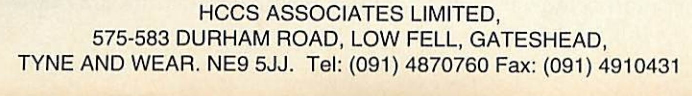
Daco Software
W. Midlands B11 2JP
021 7068933

Computer Wize
W. Midlands B6 7AQ
021 3569696

Davyn Computer Services
West Yorks WF1 5NY
0924 254800

Micro Power
West Yorks LS7 2AA
0532 458800

Resource Facilities 92
West Yorks HX2 7DR
0422 365935



HCCS ASSOCIATES LIMITED,
575-583 DURHAM ROAD, LOW FELL, GATESHEAD,
TYNE AND WEAR. NE9 5JJ. Tel: (091) 4870760 Fax: (091) 4910431

PRODUCTS



A3000	
Diamond Drives	
45Mb External	£399.00
100Mb External	£479.00
200Mb External	£889.00
HardCard45	£329.00
HardCard100	£429.00
30Mb IDE Internal with User Port	£199.00
Wise Add-Ons	
Memory Upgrades	
1Mb RAM	£45.00
1Mb Expandable	£49.00
2Mb to 4Mb for above	£129.00
4Mb RAM	£149.00
Interface Products (Internal)	
Econet	£35.00
Serial Upgrade	£19.00
User/Analogue Podule	£44.00
User Port	£33.00
TV-Modulator Podule	£39.00
Second Drive Interface	£24.00
Get Control Pack	£69.00
Interface Products (External)	
Podule Case	£15.00
Vision Digitisers	
Mono Vision Digitiser ext.	£62.00
Colour Vision Digitiser ext.	£92.00
Mono Vision Digitiser int.	£49.00
Colour Vision Digitiser int.	£79.00
A300/A400/A5000	
Diamond Drives	
45Mb External	£399.00
100Mb External	£479.00
200Mb External	£889.00
45Mb Internal	£289.00
100Mb Internal	£369.00
200Mb Internal	£779.00
Wise Add-Ons	
Memory Upgrades	
1Mb RAM for A400	£45.00
2Mb RAM for A5000	£89.00
Interface Products (Internal)	
Second Drive Interface	£24.00
Econet	£35.00
Vision Digitisers	
Mono Archimedes Vision int	£49.00
Colour Archimedes Vision	£79.00
Vision Colour Upgrade	£50.00
*Not for use with A5000 or A300	
A3010	
Diamond Drives	
30Mb IDE Internal	£209.00
Wise Add-Ons	
1Mb RAM	£45.00
Ultimate Expansion System	
Multi Podule	£33.00
Multi Podule & 30Mb IDE	£269.00
SCSI Card Micro Podule	£99.00
Analogue Port Micro Podule	£29.00
Colour Vision Micro Podule	£79.00
Power Supply Unit	£20.00
30Mb IDE Upgrade for Multi Podule	£219.00
A3020	
Wise Add-Ons	
2Mb RAM	£90.00
Ultimate Expansion System	
Multi Podule & User Port	£33.00
SCSI Card Micro Podule	£99.00
Analogue Port Micro Podule	£29.00
Colour Vision Micro Podule	£79.00
Power Supply Unit	£20.00
Book (no VAT)	
'Control On The Archimedes'	£9.95

Please send a free HCCS Product Guide ❑

NAME

ADDRESS

POSTCODE

HCCS products available from all good Dealers

All prices excluding VAT.
Postage and Packaging free.
E&OE

AU/12/92















NEXT

MONTH

BBC ACORN USER

MORE THAN 16 MILLION COLOURS ON YOUR ARC

The release of two new colour cards lets you have full 24-bit colour. We review two candidates from Computer Concepts and State Machine

BETT SHOW PREVIEW

For those involved in education and IT, the Bett show is a major event. This year there will be a special Acorn village and we will be providing you with all the details and highlights. Don't miss it

HOW TO WRITE BETTER GAMES

In the first of a three-part series, we look at how to write games. To get the ball rolling, find out what lies behind those smooth-scrolling landscapes

IN BRIEF

In the first of this new section we will be looking at turbo drivers from Computer Concepts, previewing *Wordz* from Colton Software, testing *Linkword* from Minerva, and much more

PLUS

IMPRESSION ON SHOW

Impression is most well-known for its DTP pages. But, did you know it can also create a highly professional slideshow? We show you how it's done

CADET REVIEW

What can you expect from Minerva's latest CAD release? We put it through some rigorous tests

NEW IMAGERY

This month another graphics package hits the streets in the form of *Imagery*. What can it offer to the discerning artist? We find out

REGULARS

- All the latest news and views from the world of Acorn
- *INFO – helpful advice and ideas covering the BBC A3000, Archimedes, A5000, BBC B and Master
- Your letters and problems
- Programs galore on the yellow pages and much more

To be sure of your copy, please fill in the coupon below and hand it to your newsagent. Or why not take out a subscription, which includes a free monthly disc? See page 89 for details

DON'T MISS
the January issue of BAU, on sale Thursday December 10

DEAR NEWSAGENT, PLEASE ORDER MY REGULAR COPY OF BBC ACORN USER AUD

YOUR NAME ____________________

ADDRESS ____________________

____

____

BBC Acorn User is published by Redwood Publishing, 101 Bayham Street, London NW1 0AG.
Distributed by BBC Frontline, Park House, 117 Park Road, Peterborough

QUALITY - SERVICE - SUPPORT - SINCE 1985

This is the way to the future ...

Morley SCSI Configuration Options

MORLEY
ELECTRONICS LTD

SCSIFS Auto-Configuration Software
(c) Morley Electronics Ltd 1992

Options

SCSIFS Directory cache (Kb)	16
SCSIFS Background buffers	8
SCSIFS Default drive	4
CDFS Buffers (Kb)	32
CDFS Drives	1
SCSIFS Network interlocking	
Set filing system to SCSIFS	

Configure Computer

The SCSI configuration software

Connected SCSI Devices

Connected.Devices

ID	Type	Capacity	Vendor	Product	Revision
0	Direct access	101 Mbytes	RODIME	RO3000T	4.27
1	Direct access	42 Mbytes	SyQuest	SQ555	FGJ
2	Direct access	20 Mbytes	INSITE	I325VM	*F 0385
3	Direct access	101 Mbytes	RODIME	RO3000T	4.27
4	Read-only	Unknown	TOSHIBA	CD-ROM XM-3301TA	1651
5					
6	Scanner	Unknown	UMAX	UG80	V2.1
7	Host (Cached)		MORLEY	SCSI EXPANSION	1.09

The SCSI investigation software

Our SCSI card can work with any ANSI compliant SCSI device some types of which are listed below.

- *CD-ROM drives* ❑
- *Hard disc drives* ❑
- *Flat bed scanners* ❑
- *Floptical drives* ❑
- *Tape Streamers* ❑
- *DAT tape systems* ❑
- *WORM drives* ❑
- *Removable cartridge drives* ❑

As a dedicated Acorn computer user you will understand better than anyone the restrictions you have faced in the past when trying to upgrade your machine.

We sympathise wholeheartedly and at the same time offer you a solution. Its name is SCSI, in full 'Small Computer Systems Interface'. Nothing new in that you might say, but you would be wrong. Our interface, instead of just being able to connect to a few well chosen devices, is capable of controlling any seven individual SCSI devices all at the same time. As long as they are ANSI (American National Standards Institute) compliant devices we guarantee that they will work with our card.

We designed our interface and engineered our software, to be fully compliant with ANSI standard X3,131-1986. This is the definitive standard by which all SCSI hardware and software must be measured. So if you are thinking of buying a SCSI setup ask whether it meets the above criteria. You will probably find very few manufacturers who will give you a straight answer.

The interface card can be used on any RISC-OS based machine fitted with a standard expansion slot. This means that when you upgrade your machine your SCSI setup can go with you.

*Our installation software makes setting up your system a piece of cake. Instead of messing around with *commands once your interface card and device are connected you simply run a single piece of software, give a quick Ctrl-Reset and off you go. We also include one or two rather useful utilities which give detailed information about the devices attached to your system and the speed at which they operate, together with a very comprehensive manual.*

It all adds up to a complete system that has the future built into it. You can buy our interface and devices either directly from ourselves or ask for it by name from any good Acorn dealer.

Minimum system requirements

- ❑ *Acorn ARM based computer*
- ❑ *Acorn RISC OS 2 or 3*
- ❑ *1MB RAM*
- ❑ *Standard Acorn expansion slot*

SCSI Hard disc drives incl. standard interface

	All RISC-OS computers† External	Internal
40MB	£349.00	£269.00
100MB	£499.00	£449.00
240MB NEW	£709.00	£699.00

21MB Flopticals incl. standard interface

	All RISC-OS computers†
External 21MB inc one disc**	£499.00
Internal 21MB inc one disc**	£425.00
Box of 5 Extra 21MB discs	£100.00
1 Extra 21MB disc	£25.00

Removable Cartridge Hard Discs incl. standard interface

	All RISC-OS computers†
42MB inc one cartridge**	£499.00
90MB inc one cartridge**	£699.00
Extra 42MB Cartridge	£65.00
Extra 90MB Cartridge	£109.00

Tape Streamer – Archive Systems incl. standard interface

	All RISC-OS computers†
150MB Tapestreamer inc Morley SAS RISC-OS archive software & one tape**	£799.00

SCSI interface card

	All RISC-OS computers†
Standard card**	£149.00
Cached card**	£199.00

SCSI Cables

Internal SCSI cable	£7.50
External SCSI cable	£15.00

All systems (i.e. interface and device) include all necessary cases, cables and software

A3000 Expansion options

	A3000 only
Analogue & User port	£59.00
1MB memory upgrade	£59.00
1MB expandable memory upgrade	£69.00
3MB memory upgrade	£179.00
1 to 3MB for expandable board	£145.00

300/400/540/5000 Expansion options

Acorn analogue/User/1MHz bus*	£85.00
Acorn midi upgrade for above*	£69.00
Acorn ethernet III c ard* New Product Lower Price	£149.00
A400 1MB memory	£50.00
MEMC1A upgrade	£49.00
A300 4 slot backplane	£59.00
A5000 2MB memory upgrade	£99.00

Control Software

Sparkle for Deltronics	£59.00
Sparkle for LEGO dacta©	£59.00
Site licence version for above	£200.00

Archive Software

SAS (Safe & Sound)	£79.00

SCSI Special - *Build your own*

Metal external SCSI hard disc case for 3½" drive, power supply, mains lead/plug, SCSI cable (box to drive) and whisper quiet fan.
All for only £99.00

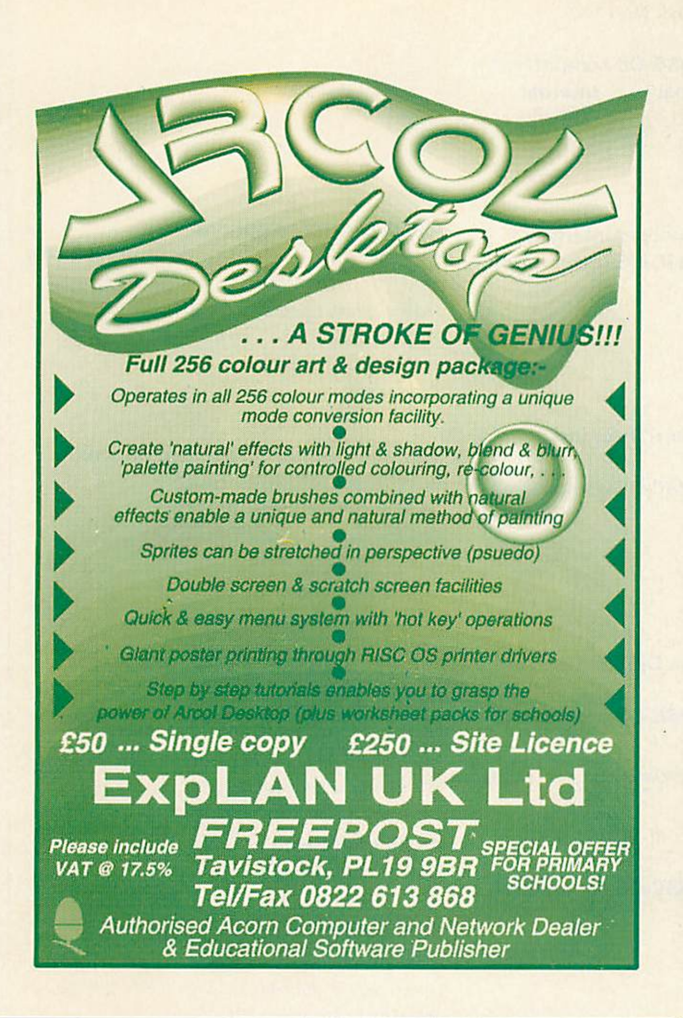
**A300 series machines must have a backplane fitted to use these. **A300 series machines must have a backplane and preferably a MEMC1A upgrade. † Currently available but excluding A4*

and this is where to find it ...

MORLEY
E·L·E·C·T·R·O·N·I·C·S · L·T·D

Morley Electronics Ltd, Morley House, West Chirton,
North Shields, Tyne & Wear, NE29 7TY
Telephone (091) 257 6355
International (+44 91) 257 6355
Fax (091) 257 6373





COMPUTER CONCEPTS

FAXPACK

NOW AVAILABLE - **£255.00**

COMPUTER CONCEPTS

LASER DIRECT HIRES 4

NOW ONLY **£839.00**

THE FULL RANGE OF NEW COMPUTERS FROM ACORN	***phone for best prices***	Scanlight A4 with sheetfeeder	£ 345.00
Laser Direct HiRes 8	£1250.00	Scanlight Junior 256	£ 179.00
BJC 800 Colour printer and driver and lead	£1665.00	**ARTWORKS**	**£ 129.00**
BJ10ex printer, + turbo driver and lead	£ 219.00	Impression 2.1	£ 119.00
Scanlight Professional	£ 509.00	Impression Junior	£ 65.00
		Impression Bus. Supp.	£ 35.00
		Compression	£ 35.00
		Pipedream 4	£ 148.00

PRICES ARE EXCLUSIVE OF V.A.T. AND POSTAGE

PHONE FOR BEST PRICES AND AVAILABILITY ON THE NEW RANGE OF ACORN COMPUTERS

FOR THE BEST PRICES ON THESE AND YOUR OTHER HARDWARE / SOFTWARE REQUIREMENTS PLEASE PHONE US ON 0689 838819

CHELSFIELD PUBLICATIONS,
2 BUCKS CROSS COTTAGES,
CHELSFIELD VILLAGE,
ORPINGTON,
KENT. BR6 7RN
TELEPHONE 0689 838819
FAX 0869 872127



36 Park Rd,
Duffield,
Belper,
DE56 4GR

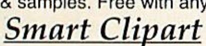
Smart DTP (0332) 842803

Professional Desktop Publishing

Special Xmas Offer — *Only £1*

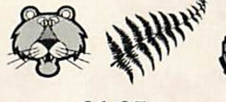
Send £1 and receive your exclusive smart pack, including disc & catalogue. Disc includes xmas clipart & samples. Free with any order (Offer ends Dec 25th)

Smart Clipart — *£4.95 Per disc*



Disc 01 General
Disc 02 Animals
Disc 03 Flowers
Disc 04 United Kingdom
Disc 05 Sport *New...*





Smart Resources 1 — *£4.95*

Corners, Symbols, Flashes, Borders, Arrows, Speech & Think Bubbles, Rules and a large selection of general clipart.

Smart Borders — *£7.50*

This package contains just over 140 borders specially designed for Impression II. Also included on the disc, a manual in impression format and several extras. Add 50p for a laser printed ref. Pamphlet

Laser & Scanning Services — *NEW*

We can now offer our customers high quality laser printing & scanning services. As well as first class post we can dispatch by courier for urgent work. Call or write for further information

■ ***High Resolution Laser Printing (Laserdirect 600x600 Dpi)***

First page 50p each additional page 20p. Standard prices for quality A4 paper (100 G.s.m white paper). Colour paper, light card, labels, A5 etc also available. We accept most file formats including; Impression, Artworks, Acorn DTP, Ovation, (Thanks BEEBUG) Draw, Paint, Text etc. Simply send disc (Adfs 800k or 1.4m), Instructions & payment.

■ ***256, 16 Greyscale & Mono Scanning***

We can scan your artwork for use in Dtp etc. First scan 50p, each additional scan 30p. Scan can be at 100,200,300 or 400 Dpi (Mono,16 or 256 Greyscales) We recommend a max. of 200dpi for a 256 G.S scan Artwork no wider than 100mm. Please add 40p for returned scan disc

Please make cheques / P.O. payable to Smart DTP. For software & Services please add 50p to cover P&P (FIRST Class Post) NEW PRICES

ArtStudio

Art & Graphics Library for use on all Acorn computers including Archimedes, A5000, A4000, A3000, A4



New Graphics for ArtWorks by ArtStudio.

If you would like to recieve a demo pack please complete the coupon below. We will send samples for you to try out. All the discs are also available in !Draw format. Single disc prices from £5.99

ArtWorks £174.95 inc post and packing

Name ______ Age ____
Address ______
______
______
______ Post code ______
Computer ______ Printer ______

Please enclose £1.00 for a demo disc and catalogue

ArtSTUDIO (AU) 83 Clay Street
SOHAM, Cambridgeshire. CB7 5HL
AU.12.92

• ATTENTION ALL ACORN A3000 OWNERS •

SAVE MONEY & RAISE MONEY

A 'plug in and go' SCSI interface and 40mb hard disc podule for just

£299.00 (ex vat)

• PLUS • PLUS • PLUS •
a £25 cash donation to a school of your choice

The scheme is quite simple.

1. Complete the order form below and send it to us together with your payment. Alternatively, you can place your order by telephone using a VISA or Access card.
2. We will despatch your order to you within 14 days*. We will also send you a special voucher.
3. You give the special voucher to the school of your choice.
4. The school collects the vouchers and sends them to Cumana.
5. Cumana send the school £25 cash for each voucher received.

It couldn't be easier!

Installation

No need to open up the computer – fitting requires just two screws and an Allen key which are supplied. The podule is positioned at the back of the A3000 and measures just 165(D) x 105(W) x 45(H) mm.

The technical details

- The interface contains the CDFS software required to use a CD-ROM drive
- Track to track seek time 5 ms
- Average seek time with DisCache® *< 12 ms
  * Is a registered trademark of Quatum Corporation
- Data-transfer rate up to 4Mb/sec synchronous
- Full auto-parking facility
- 60,000 hours mean time between failure

"I would recommend this product to any A3000 user. It caters well for our needs . . . these drives are truly amazing." *Nick David, Micro Computer Mart*

Price incl. vat £351.33 per drive. **DELIVERY IS FREE!** *We will advise you if we are not able to supply within this time.

NAME .... **ADDRESS** ....
....
.... **POSTCODE** ....
I would like to order ☐ Cumana CAA 740(s) at £351.33 each.
Please debit my ACCESS /VISA card (please delete):
No. .... **Expiry date of card** ...... / ......
Signature ....
Cheques should be made payable to Cumana Ltd

AU/12/92

• OUR GUARANTEE •
ORDER WITH CONFIDENCE. CUMANA CAA 740 PODULES CARRY OUR 28 DAY MONEY-BACK GUARANTEE OF SATISFACTION. YOUR STATUTORY RIGHTS REMAIN UNAFFECTED.

CUMANA®
The best name in memory

Orders may be placed by: telephone - 0483 503121, or fax - 0483 503326 or sent to: Cumana CAA 740 Offer, Pines Trading Estate, Broad Street, Guildford, Surrey GU3 3BH

This special offer is subject to availability and is only available direct from Cumana

The offer closes on 31.1.93 Vouchers should be returned to Cumana before 31.3.93. Normal retail price £468.83 (exc. delivery).



JOLLY GOOD **SHOW**

A good time was had by all at the BAU show. Ian Burley picks out a few high*lights*

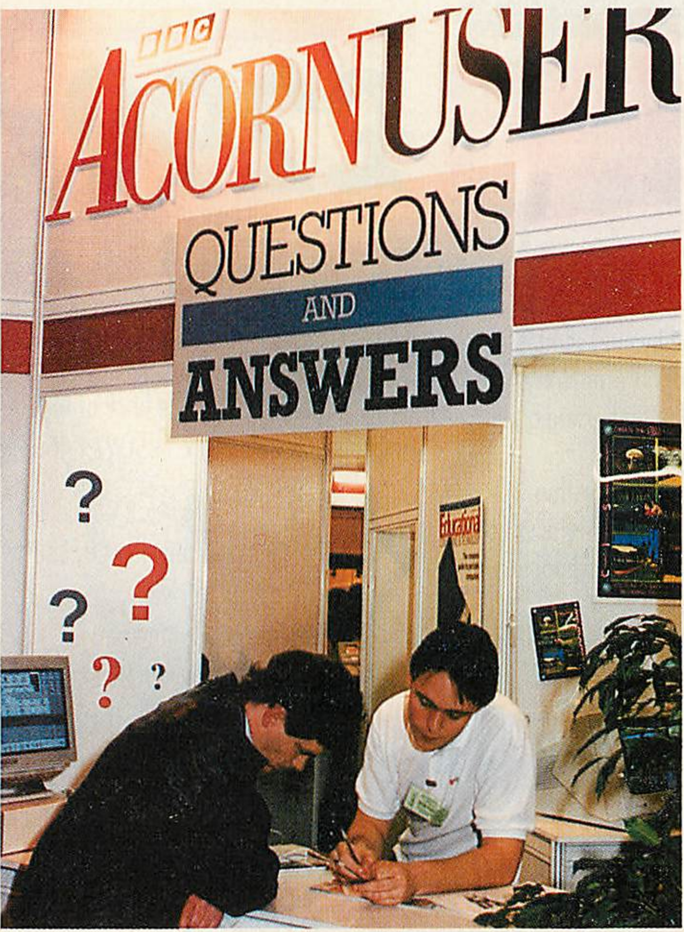
The annual *BBC Acorn User* Show; for many in the Acorn industry it's the most few days of the year. This year's event lived up to expectations after last year's run away success.

The new Wembley Hall 3 venue was more spacious than last year, and a major improvement in the eyes of most we talked to during the show. If you weren't one of the 10,000 or so who managed to make the trip to Wembley, here's a sample of some of the things you missed.

ASK ANYONE what their main reason for being at the show was and nine times out of ten it was to pick up a Risc OS upgrade. There had been worries that supplies would be non-existent at the show because of supply problems and massive demand. It didn't work out quite so bad, but there was little sign of cut-down A5000 upgrade kits and full upgrade packs were out of stock on most stands by Saturday afternoon.

Acorn's brand new Risc computers, from the A3010 through to the latest A5000 incarnations, were next on show-goers' lists to have a look at for the first time. Acorn had one central stand to demonstrate all the new additions to its family, plus numerous sales and technical clinic booths dotted around the show floor. Limited pre-release numbers of Acorn's long-awaited *Risc OS 3 Programmers Reference Manuals* (PRMS) were being sold by Acorn and even at £120 a throw these were quickly sold out.

WILD Vision itself was a guest on Computer Concepts' stand. Wild Vision showed the latest MkII compact version of its versatile Hawk V9 video digitiser which offers fast dithering in hardware and a 256-grey level facility.



This year's show offered expert advice as well as a large selection of procducts

Another new range of colour graphics accelerator cards was being shown for the first time, this time by the new firm State Machine on the Advanced Computer Services stand. Clearly, State Machine and Computer Concepts are competing for the same market and both products share a lot of similar features, though State Machine offered three different versions of the card; the G8, G8 Plus and G8 Professional.

The first of these was only available at the show: the G8 was sold for £249+VAT. The G8 plus sold for £299+VAT and the Pro at £349+VAT. A comparative review of the Computer Concepts and State machine cards will be in next month's issue of *BAU*. State machine sold out of its first production run at the show. Check our news pages for more details.

THERE was a distinct feeling of *deja vu* on the Klein Computer stand. The guys from Germany, at their 3rd *BAU* Show, were showing off *Aldebaran*, which at a glance looked like a souped-up version of *Zarch*, which itself is a souped up version of *Lander* supplied with all Archimedes. In fact despite the familiar three-dimensional solid tiled perspective landscape and a shoot-em-up space hip, *Aldebaran* is a completely new game which took 25,000 lines of Arm machine code to develop. It's the only game I've yet seen which allows you to 'fly' under water and I'm assured that underneath the impressive graphics is a strong strategy element.

This is the type of game you simply can't do on an Amiga – and its on the top of my Christmas present list! *Aldebaran* is available from MAPS Ltd – check our Games pages for more details.

A BIG sign on the Ground Control stand promoting 35MHz Arm3 upgrades for £250 including VAT needed investigating. In fact the sign was wrong – the impressive gold-finished chip packages will have 36MHz oscillators when limited production begins. Check the main *BAU* news for more details.

Also to be seen on the Ground Control stand was revised software for its teletext adaptor. The new software now has a pseudo-database function which works by downloading selected pages which can then be searched more conveniently 'offline'.

STAYING with Arm3 upgrades, as expected, prices tumbled at the show with £170 including VAT being the norm. Last month we reported that Simtec had produced an upgrade which included a floating point accelerator (FPA) chip socket ready for when the chip finally appears, probably in the middle of next year. Simtec wasn't at the show, but several other Arm3 upgrade competitors were.

ARXE SYSTEMS was, literally, a last minute exhibitor. The Arxe stand wasn't finalised until the night before the show opened, but it turned out to be well worth the effort, with considerable interest in the firm's combined SCSI and

high density floppy disc drive controller card.

WE SPOTTED Ifel and CJE Micros selling 25MHz Arm3 upgrades with a new connector enabling an FPA piggy-back board to be fitted at a later date. CJE Micros also showed its new £140 inc.VAT 4Mb Ram upgrade for the A3010.

ALEPH ONE'S Alex Van Sommeren was another exhibitor extremely happy with business at the show. The new 486SLC PC card was sold out on the first day, requiring a special trip back to Cambridge for extra supplies.

Like Computer Concepts, Alex reported that business was several times better than last year. Interest in the upgraded 386 PC card was also heightened by a reduction in price.

ANOTHER established name with a lot to say at the show was the Electronic Font Foundry. The EFF announced that all its fonts, where applicable, now incorporated auto-kerning. Non-kerning fonts, like Indian script for example, have been reduced in price by 30 percent and a new pack of 35 PostScript fonts has been introduced for £49. Other font packs have been reduced from £60 to £25.

MORLEY Electronics was showing off its well-established SCSI hard disc drive controllers as well as exhibiting its new line of CD-Rom solutions. Calligraph attracted a lot of interest with its new TQ1200 A3 direct drive laser printer. The Serial Port was selling an attractive pocket fax modem package based around *ARCterm 7* and David Pilling's *ArcFax* software (see review this month). Wandering around the show were dozens of Arcade bulletin board users sporting BB badges.

WATFORD Electronics reported very healthy business as usual, though there was disappointment for visitors hoping for a peek at the long-awaited PC card. This made a brief appearance on the first day, but a hard disc problem curtailed any further demonstrations. Things were very busy elsewhere on the Watford stand, because of a special deal to sell Hewlett-Packard Deskjet 500 colour printers for just £339+VAT. Watford was also selling the brand new HP Deskjet 550 printer, which has both colour and mono inkjets built in.

PERHAPS the physically largest attraction at the show was a purpose built video-projection theatre jointly sponsored by Acorn and TDK, the floppy disc makers. Audiences a couple of hundred strong were treated to regular half-hourly demonstrations covering topics from multimedia to desktop publishing. In between demos Acorn's new TV advertising campaign was given an airing. Other features of the show included a special area set aside for companies specialising in the education market and right at the other end of the spectrum there was a an arcade game boulevard of eight A3010 machines running the latest joy-stick testers.

OVERALL, although last year's tally of 10,500 visitors wasn't substantially bettered, considering the state of the country's economy, most exhibitors we spoke to were very pleased with the seriousness of the visitors who attended and more money was spent than last year. the international flavour was as strong as ever, with several exhibitors from Germany plus visitor interest from Holland and Australia.

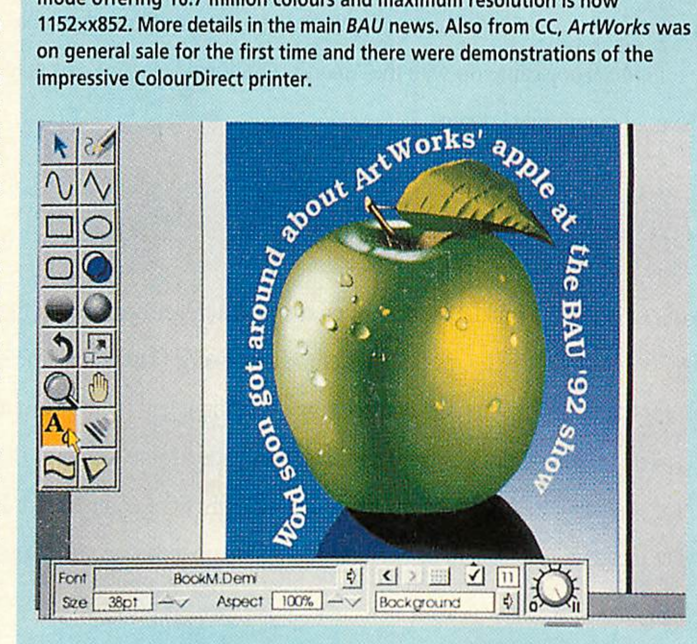
Visitors had also come from far and wide. One visitor we bumped into, Konstantinos Koukoulis, made a special trip from Greece. He went away with a Risc OS 3 upgrade and several other goodies.

There were far less floppy-disc and games-box shifters than last year, which made room for exhibitors with more interesting and useful products to show. The quality and scope of new products was extremely encouraging as well.

FINALLY, a quick thanks goes to Aylu Zorbas, a *BAU* reader who helped out on our stand; how could we refuse the offer? He says really enjoyed himself and even asked for the *BAU* team's autographs!

SURPRISES FROM CC

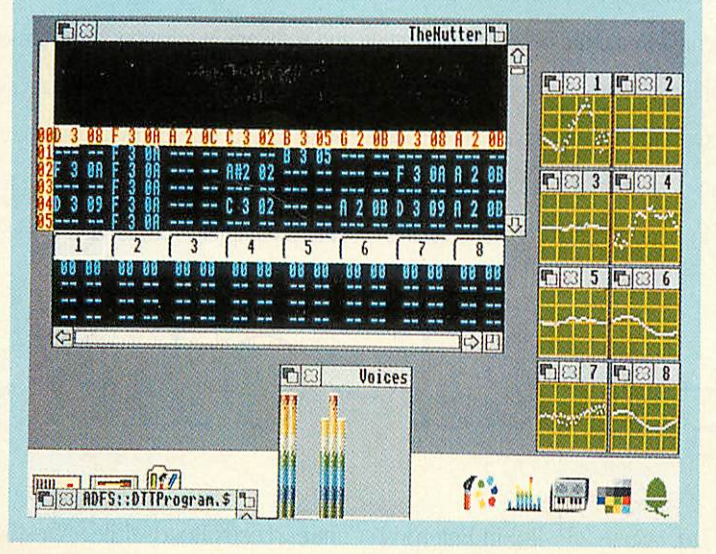
Computer Concepts combined no less than eight individual stands into one, making it the biggest single exhibit at the show, slightly larger than Acorn's central stand. The surprise from Hemel Hempstead was a new £249+VAT colour graphics accelerator card, for which Computer Concepts deserves a prize for the industry's best kept secret of the year. The new card was developed in conjunction with CC's new partner firm Wild Vision. Simply named as 'Colour Card' the device offers much larger screen modes than previously possible plus better system performance by relieving the main Arm processor. Lots of colours are available all the way to 24-bit mode offering 16.7 million colours and maximum resolution is now 1152xx852. More details in the main *BAU* news. Also from CC, *ArtWorks* was on general sale for the first time and there were demonstrations of the impressive ColourDirect printer.



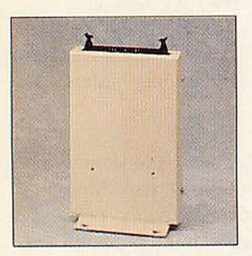
Was CC's managing director, Charles Moir, happy with the show? 'It was an excellent show, we sold several times more goodies than last year and that was a good show for us,' he replied, nursing a sore throat from several product demonstrations he hosted.

SOUND IDEAS

Another relatively new name at the show was Vertical Twist, whose products are marketed by Leeds-based Leading Edge. New VT products on show included *Desktop Tracker*, shown below, a completely re-written version of the popular sound sample sequencer package which features up to 16 voices and four effects per voice. Also spotted was The Games Wizard, a games-hacking program for players wishing to customise their gameplay plus QDBug, an Arm machine code de-bugging package.



Oak Solutions SCSI Systems

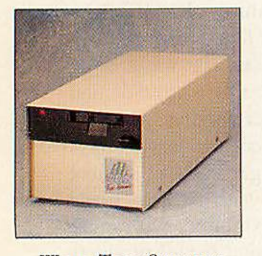

A3000 16 Bit SCSI Card



Worra Winnie


High Speed Drive


Elite Drive


Worra Tape Streamer

1988

Back in pre-RISC OS days, it quickly became obvious that the limitations on capacity, performance and versatility imposed by the ST506 hard disc controller were an unnecessary hindrance to an otherwise excellent machine.

We set our design engineers the task of developing a design strategy, which removed the existing limitations of size and speed of hard drives and one which would give the users a versatile and reliable industry standard expansion bus that must have a future. They came up with the American National Standards Institute, Small Computer Systems Interface or SCSI as it is more commonly known.

1989

We asked our engineers to build a number of prototype controller boards with the chief aim of allowing maximuum data throughput - i.e. ensuring that the podule bus of the Archimedes rather than the speed of the controller card was responsible for the upper limit to performance - by definition it had to go as fast as you could run a SCSI podule on the Archimedes. The prototype designs were tested with as wide a variety of SCSI devices as were available and a decision was made to go straight to a 16 bit hardware design - the first SCSI controller for RISC OS and a design that has remained unchanged to this day. The Oak 16 bit SCSI card has gone on to become the best selling SCSI controller card in the Acorn market.

The next job was to write a manual, covering topics such as installation, initial testing, using the device, trouble shooting, write protection, Dos and Don'ts etc. We even tested the manual by asking ordinary users to install hard discs and comment on the value of the information contained in the manual. And then we re-wrote the forty six page manual in plain English, so that even the most non-technical person could understand!

In tandem with the launch of the SCSI controller card, we introduced a Zero Defect manufacturing philosophy. This had enormous implications for every stage of the manufacturing process. Every component and sub assembly is tested, all test and assembly staff are thoroughly indoctrinated with the quality message, every stage of manufacture and test is documented in minute detail. All formatting and software installation is performed prior to a final test, and important configuration details are stored on the controller card itself so that the user can simply plug it in and go. Finally, each completed product undergoes an exhaustive soak test, monitored by a computer which logs results and rejects anything less than perfect. In short, we ensure that everything within our power is done to guarantee that the products leave the factory in perfect condition, full working order and complete with all accessories.

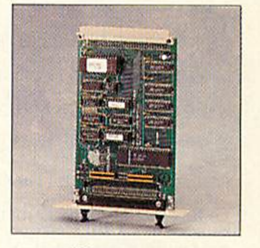


We Lead - Others Follow

Oak Solutions Ltd. Suite 25 Robin Enterprise Centre Leeds Road Idle West Riding of Yorkshire

QUALITY RELIABILITY

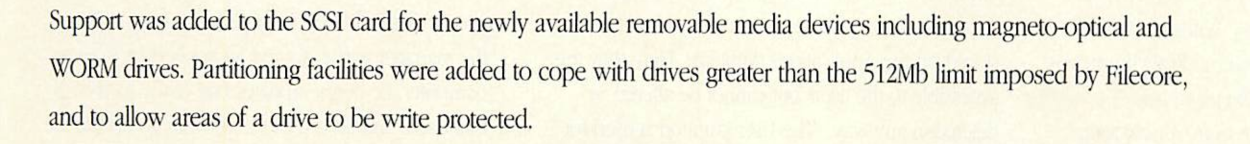
Zero defect doesn't end at the factory gate however. We have to ensure that delicate devices safely reach our clients anywhere in the world. Careful choice of carriers, and packaging designed to cope with situations far in excess of the worst likely scenario (existing Oak customers will know exactly what we are talking about) ensure that products reach the customer in the same condition they left the factory. Our technical support also had to be first rate, and so users were given direct access to the engineers directly responsible for the SCSI products.


16 bit SCSI Card

1990

We launched a range of tape streamers. Controlling tape streamers via the SCSI card was straightforward, however developing comprehensive backup software was a major task! Most tape backup systems allow only a simple bit-map copy of the source device to be made, but this technique does not allow you to restore just a single file or directory and carries with it a host of other important restrictions. After discussions with a range of typical end users, we derived a specification for the tape software. The software allows for manual and automatic timed backups of all or selected files from any filing system (including networks), and restoration of anything from single files to the complete backup structure.


High Speed Tape



Support was added to the SCSI card for the newly available removable media devices including magneto-optical and WORM drives. Partitioning facilities were added to cope with drives greater than the 512Mb limit imposed by Filecore, and to allow areas of a drive to be write protected.


DAT Tape Streamer

1991

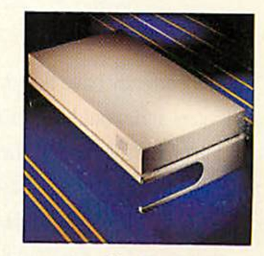
With every hard disc system we supply a FREE bundle of software worth over £200.00 which includes Disc Tree hard disc backup and search utility, Euclid 3D graphics package, Genesis 1 multimedia package, RISC OS Companion 1, Worra Battle - a 3D tank battle game, and Remote Logon to allow you to access your hard disc remotely over Econet.

Launch of ClassRom, a new concept in the management of stand alone hard discs or numerous hard discs over Econet.


CDROM Drives

1992

Acorn launch CDFS 2.10, and we make CDFS an option on the SCSI Controller. ClassRom 5000 launched to allow the hard disc of the A5000 to be protected and managed alongside other ClassRom drives. Because of large volume production, we are able to reduce the cost of the SCSI controller card to only £98.00.


ClassRom

The Future

Because SCSI has emerged as the choice of the World's high speed workstation manufacturers, development of new SCSI peripherals will continue for a long time to come. We at Oak Solutions have the resources, expertise and commitment to continue to make these developments available in the Archimedes world.

Tel: 0274 620423 Fax: 0274 620419

COMPATIBILITY PERFORMANCE

Share Today.....

As computers become more widely available in schools they are also becoming more sophisticated. It is not uncommon to find computers with 4 M bytes of memory, hard discs, laser printers and colour scanners filling IT rooms across the country. With this increased availability and sophistication comes an increased management problem for those people responsible for looking after the school's IT resources.

Oak Solutions has developed a management philosophy which caters for single stand alone computers through to a large school-wide network. The Class Management philosophy breaks down into three major products ClassRom, ClassShare and ClassNet; each using industry standard hardware supported by state-of-the-art software to address a different but related set of problems.

Class *Rom*

ClassRom deals with problems associated with using hard discs on computers. Without a doubt, adding a hard disc to a computer radically improves the useability of the system. No more disc swapping when applications require a new font, almost instantaneous loading of applications and what seems like unlimited storage.

However, in a school environment there are drawbacks. The structure of applications and system resources stored on the hard disc is important and if any important files are overwritten or deleted, this could stop the system working. As hard discs are read/write devices this means that there is no protection of the applications from the user. This is where ClassRom comes in.

ClassRom is a system of protecting hard discs. It 'partitions' the hard disc into two separate areas; one which is protected (the Applications partition) and one which is read/write (the User partition). All applications, system resources and fonts are stored on the Applications partition. Here they are accessible to the users but cannot be altered or deleted in any way. The User partition is used for temporary storage of data either by the system or by the user.

The IT Coordinator has a management disc which allows the Applications partition to be unlocked in order for new applications to be added or old ones deleted. This software is password protected for maximum security.

ClassRom is available as a ROM upgrade for Oak Solutions SCSI cards, complete systems including hard disc and SCSI controller card or as a small plug-in board for A5000 IDE drives or A300/400 series ADFS drives.

In a network environment, where each computer has a ClassRom attached, the management software allows them all to be managed simultaneously. If the manager wishes to add an application to each computer, he or she updates one of the hard discs manually and then uses the software to update the rest over the network. If several changes have been made, this process can be set up to take place overnight.

So, ClassRom solves the two main problems with using hard discs on computers within an educational environment, stopping the students deleting the software and managing twenty or so individual hard discs.

Class *Share*

If you currently have floppy disc based computers and would like to add hard discs to each but don't have the money, the ClassShare system may solve your problem. Based on the principles of ClassRom, ClassShare allows a number of computers to share the ClassRom hard disc of another computer. A ratio of 4 computers to each hard disc is recommended, however, more computers can be connected if required.

The way it works is very simple. Take a scenario where you have one A5000 and 3 A3000s. The A5000 is setup as a ClassRom, and is configured to run the multi-tasking ClassShare software automatically on start up. All the computers (A5000 and A3000s) have a ClassNet interface and cabling added to allow communication to take place. The A3000s are configured to be ClassShare 'clients'.

When the machines are switched on they all see two hard disc icons; one representing the Applications partition and the other the User partition. The A5000 is directly connected to the hard disc but the A3000s are connected via the ClassNet. The A3000 users don't know this, however, and continue using their computers as if they had local hard discs. This 'transparent' setup means that any user can go to any computer and be familiar with the way in which it works.

At a later date, there is no reason why the A3000s could not have their own ClassRoms attached, improving overall system performance.

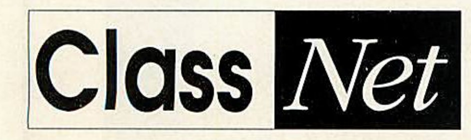


Working For Education

Oak Solutions Ltd Suite 25 Robin Enterprise Centre Leeds Road Idle West Riding of Yorkshire BD10 9TE

QUALITY RELIABILITY

.....Network Tomorrow?



The ClassNet system mentioned above is the latest development in networking. Oak Solutions have combined industry standard Ethernet® hardware with a set of no-compromise protocols to deliver the fastest network yet produced for the Archimedes. Even though the hardware looks after collision detection and retries, our protocols provide further levels of data security to ensure maximum system reliability. Internal ClassNet interfaces are available for all Archimedes including the A30'N'0 and A4000.

ClassNet uses standard Ethernet cabling to interconnect the computers and setting up a small network couldn't be simpler. BNC connectors are used rather than the 5-pin DIN connectors used with Econet. One part of a T-piece is fitted onto the back of each interface and the other two parts are connected to the cable. At each end of the network, a terminator is plugged on to one side of the T-piece. ClassNet requires no clock.

From a user's point of view, ClassNet looks just like Econet. If you are familiar with using Econet to log on to file servers then you can already use a ClassNet network. In fact, all your existing Level 4 File Servers, Printer Spoolers and Disc Sharers can still be used with ClassNet - it just works 40 times faster!

As ClassNet uses industry standard components, large school-wide networks can be built around off-the-shelf Ethernet Repeaters and Bridges. This means that there is a greater choice of supplier and many more people who are able to install your network.

Similarly, it is possible to run Acorn's AUN software on the ClassNet interface to gain access to other types of network and file servers via an AUN gateway station. Users may then log on to the remote file server as if it were connected to the same network. By supporting AUN and industry standards, Oak Solutions guarantee complete compatibility with Acorn's networking strategy, with the unique advantage that the ClassNet protocols offer unparalleled speeds.

To Industry Standards

Tel: 0274 620423 Fax: 0274 620419

COMPATIBILITY PERFORMANCE

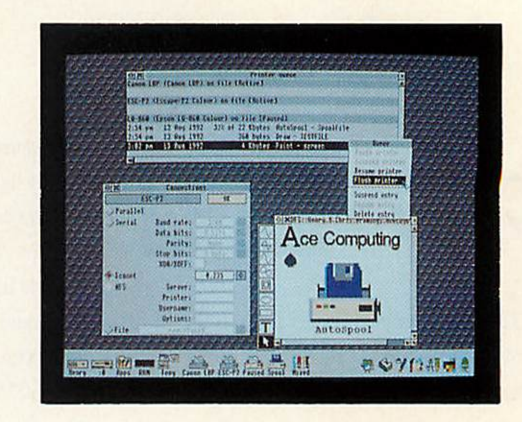
ProDrivers for RISC OS 3

Upgrade to !Printers for all printers supported as standard by RISC OS 3 gives:

- ♠ 24 bit colour for ALL colour printers
- ♠ CMYK colour separations from ALL printers
- ♠ Spooling and background printing for ALL printers

New printer drivers for the following printers giving all the above features:

- ♠ PaintJet, PaintJet XL, PaintJet XL300 and DeskJet 500C
- ♠ Epson ESC-P2 printer standard
- ♠ Canon LBP4 and LBP8 (driven via parallel port!)





Ace Computing
27 Victoria Road
Cambridge
CB4 3BW
Tel: (0223) 322559
Fax: (0223) 69180

!Printers upgrade	£25 (ex VAT)
HP Colour ProDriver	£40
Epson ESC-P2 ProDriver	£40
Canon LBP ProDriver	£40
Standard drivers	£16



SCSI ClassRom ClassShare ClassNet

16-bit SCSI Interfaces	RRP	Ed
A3000	£98.00	£83.50
A300/400/500/5000	£98.00	£83.50
CDFS Upgrade	£98.00	£38.25
Worra Winnie Internal Hard Discs A300/400/500/5000		
40 Mb	£324.00	£300.00
100 Mb	£474.00	£440.00
200 Mb	£760.00	£700.00
Worra Winnie External Hard Discs A3000/A300/400/500/5000		
40 Mb	£370.00	£340.00
100 Mb	£520.00	£480.00
200 Mb	£805.00	£740.00
High Speed Internal Hard Discs A300/400/500/5000		
40 Mb	£364.00	£330.00
100 Mb	£514.00	£465.00
200 Mb	£800.00	£720.00
High Speed External Hard Discs A3000/300/400/500/5000		
40 Mb	£414.00	£380.00
100 Mb	£564.00	£510.00
200 Mb	£850.00	£770.00

Elite External Hard Discs A3000/300/400/500/5000	RRP	Ed
100 Mb	£664.00	£615.00
200 Mb	£950.00	£875.00
300 Mb	£1370.00	£1260.00
680 Mb	£1820.00	£1675.00
Worra Tape Streamer		
60 Mb	£620.00	£570.00
150 Mb	£820.00	£755.00
High Speed Tape Streamer		
60 Mb	£790.00	£715.00
150 Mb	£920.00	£830.00
Elite Tape Streamer (DAT)		
1 Gb	£1775.00	£1630.00
Magneto Optical R/W Drive		
560 Mb	£3675.00	£3125.00
CD ROM Drives		
Worra CD	£390.00	£324.00
High Speed CD	£540.00	£424.00

Prices shown include SCSI interface (except CD ROMs which require SCSI card and CDFS upgrade). Always state computer type when ordering Each hard disc comes complete with the following FREE software: Genesis 1, Euclid, Disc Tree, RISC OS Companion, Worra Battle.

ClassROM (including system software) Internal	RRP	Ed
40Mb	£344.00	£320.00
100Mb	£494.00	£460.00
200Mb	£780.00	£720.00
External		
40Mb	£390.00	£360.00
100Mb	£540.00	£500.00
200Mb	£824.00	£760.00
ClassRom 5000		
1 off	£65.00	£50.00
5 off		£225.00
10 off		£399.00
20 off		£699.00
ClassNet interface		
A3000/3010/3020/4000	£199.00	£149.00
300/400/500/5000	£199.00	£149.00
ClassShare software		
Cluster Licence	£199.00	£149.00

Please note that due to the turbulent state of the currency markets, these prices are subject to change. Please phone for up to date prices.

Prices exclude Carriage (£10.00 hard discs/SCSI ClassRoms, £15.00 tape streamers, £3.50 SCSI cards/ClassNet cards/ClassRom 5000) and VAT



Oak Solutions Ltd. Suite 25 Robin Enterprise Centre Leeds Road Idle West Riding of Yorkshire BD10 9TE Tel: 0274 620423 Fax: 0274 620419



QUALITY RELIABILITY COMPATIBILITY PERFORMANCE

FREE PROGRAMS

WHEN YOU SUBSCRIBE TO BBC ACORN USER



You don't have to be totally at the mercy of your Draw files. Our powerful utility, DrawBend, lets you take total control



Automate your action painting. Splat does messy things to your screen. It's just one of the entertaining programs from our ★INFO column

PLUS SPECIAL LUXURY BINDER OFFER

THE BEST SELLING ACORN MAGAZINE

Every month, *BBC Acorn User* brings you all the news, reviews and features covering the world of Acorn. That is why we are the best selling magazine in the Acorn market-place. Whether you own a BBC B or the latest Archimedes A5000, there is something for you.

As well as up-to-the-minute news on the latest Acorn hardware and software, our regular columnists cover new developments in the areas of education, communications and graphics. Add to that the best in reviews and features and you have a magazine that no Acorn user should be without.

FREE MONTHLY DISCS

We aim to bring readers the best programs for their machines. These are listed on our yellow pages so that the keen programmers out there can type them in. However, there is an easier way – you can load them straight in to your machine from the monthly disc which we send **free** to UK subscribers. The monthly subscription costs just £22.95 and the free disc contains all of the programs featured in each issue, plus additional utilities we think you'll find useful. The programs can help you get maximum enjoyment from your Acorn machine.

To obtain the 12 discs free with each UK subscription, just tick the relevant box below. The 3.5in disc is compatible with the BBC A3000/Archimedes, and BBC B/Master/Compact with 3.5in drive and ADFS. The 5.25in disc is 40/80-track DFS and is suitable for BBC B/B+/Master computers with 5.25in drive.

BINDER OFFER

To keep your copies of *BBC Acorn User* in pristine condition, we have produced a special binder. Finished in white with our logo, the binder will hold 12 issues. You don't have to subscribe to obtain a binder – all you have to do is tick the relevant box below. Each binder costs £5.95.

WHAT TO DO

To become a subscriber and receive your free monthly disc, send the order form with your remittance to: *BBC Acorn User* Subscriptions, PO Box 66, Wetherby LS23 7HL. Or you can ring our special **credit card hotline number: (0937) 842489**.

BBC ACORN USER ORDER FORM

Name..

Address..

....

.... Postcode.........................

Signature..

Please tick if you are taking out:

❑ A new subscription

❑ A renewal of a current subscription

SUBSCRIPTION OFFER

AUD

	Magazine only	3.5in disc	5.25in disc
UK	N/A	❑ £22.95	❑ £22.95
Mainland Europe	❑ £35	❑ £49	❑ £44
Rest of World	❑ £45	❑ £69	❑ £64

BINDER OFFER

❑ Please send me....... binders at £5.95 each

BACK ISSUES/DISCS OFFER

Month.................................**Year** ❑ 1990 ❑ 1991 ❑ 1992

Magazine only ❑ £1.95 **Discs** ❑ £4.95 (5.25in) ❑ £5.95 (3.5in)

Overseas orders add £1 (Europe) and £3 (rest of the World)

I enclose a cheque/PO (made payable to Redwood Publishing Ltd) for a total of £ ....

Access/Visa card no.. Exp date.................



Our programming column, *INFO, has had a busy year. Now you can get all the best bits on a two-disc compilation

Since it began back in July 1991, *INFO has proved to be the home of the best in magazine listings. During its life, over 200 yellow page listings have been featured plus many more on the subscribers' discs. You can now get your hands on nearly a megabyte of this high-quality 32-bit software for a mere £7.95 all-inclusive.

Besides the huge range of graphics demos and simulations illustrated here, the two *Best of *INFO* discs contain oodles of advice on every aspect of Acorn machines, and many invaluable utilities.

Filing aids featured on the disc include *ABCdir* to keep track of your most recent files and *Biggest* to stop files eating up most of your hard disc.

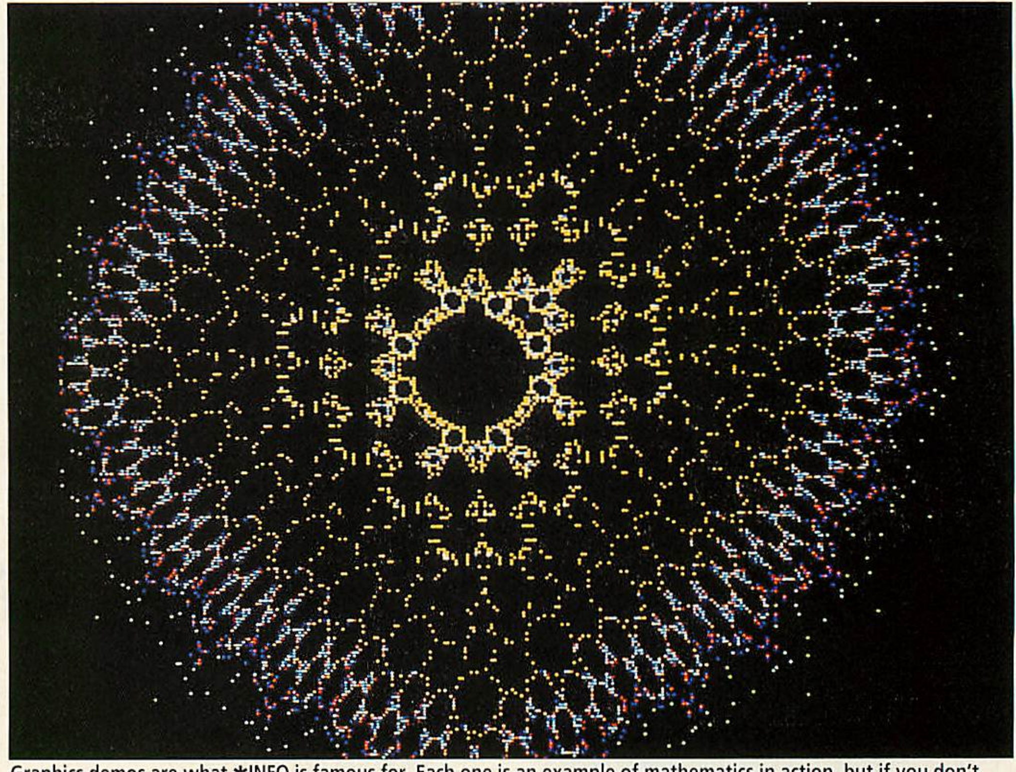
Desktop utilities also feature, like *TidyDesk* – a multi-purpose desktop aid, and *HourMaker* for designing and animating custom hourglasses.

Modules like *Accent* for easy insertion of foreign characters and *ListAid* for paper-saving multi-column listings are also included.

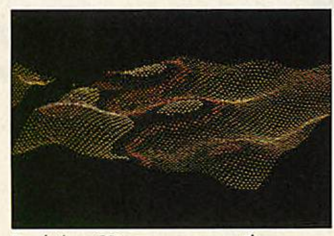
*HELP

Each program featured on the discs comes complete with a text file. In most cases this includes the text from the original article and, where useful, figures are also provided as *Draw* files. We hope you'll be able to use the ideas and techniques featured in your own programs.

There's an index system to complete the collection, and an index of all *INFO items right from the start, so you can seek out the listing or snippet of advice you need.



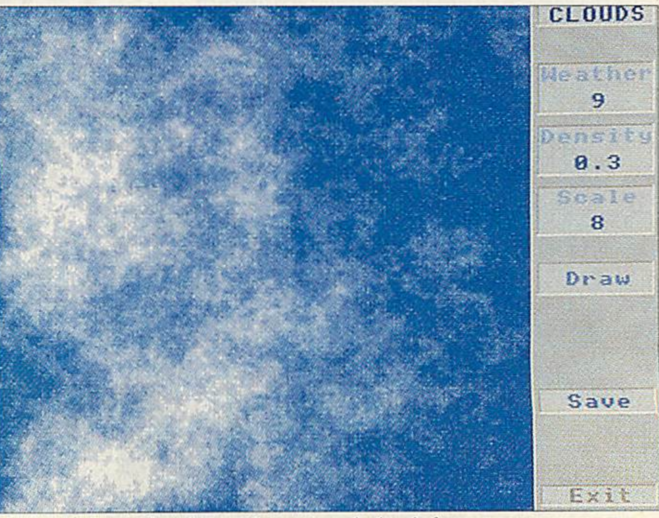
Graphics demos are what *INFO is famous for. Each one is an example of mathematics in action, but if you don't understand the formulas, just appreciate the results.



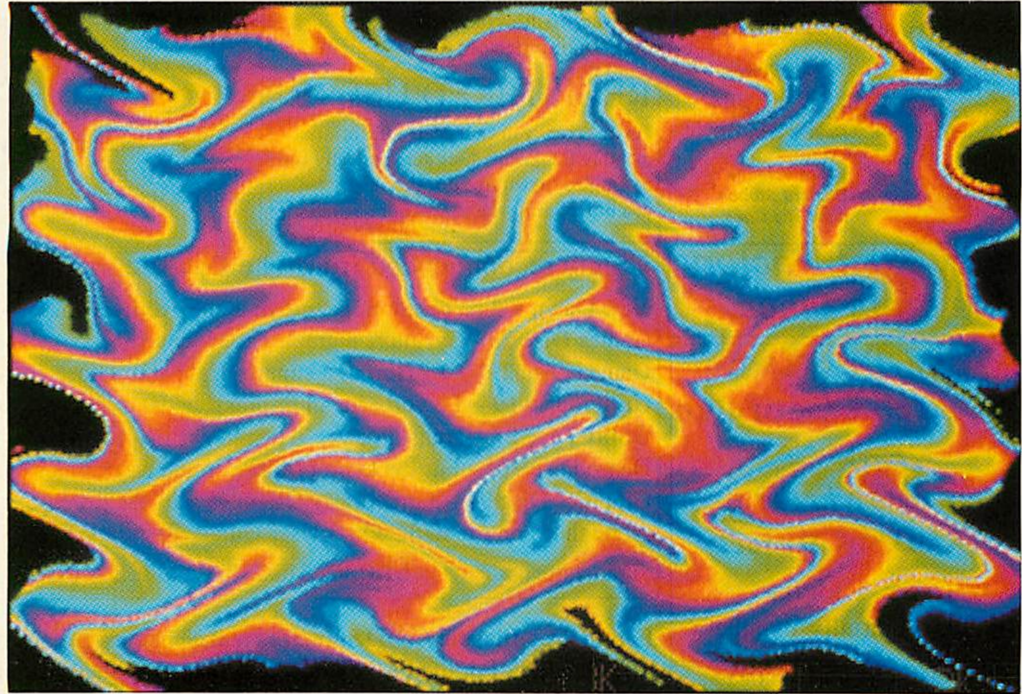
Real-time 3D waves: move them around with the mouse



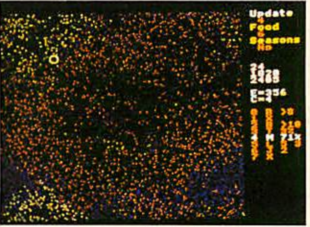
*INFO teaches you how to get more colour from the Arc



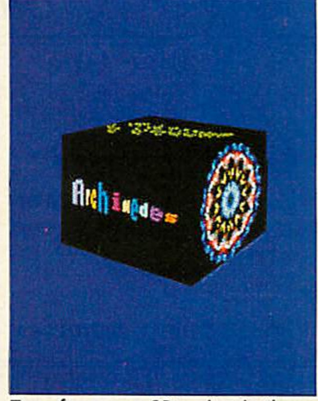
If the British weather doesn't have enough clouds for you, you can create your own, very realistic, on-screen equivalents



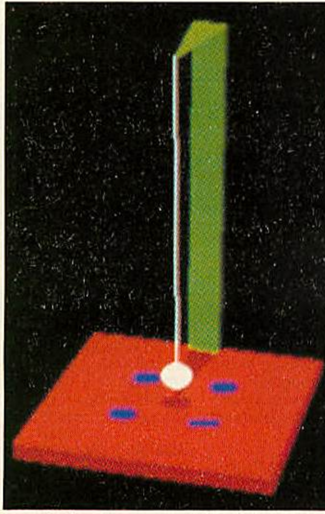
Fire32 is a simulation of a raging fire. Fully animated, it's an example of how to use colour cycling to achieve impressive results



Simulate natural selection by breeding software 'bugs'



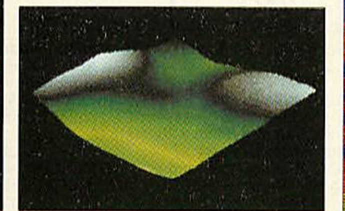
Transform your 2D sprites in three-space with Cube32



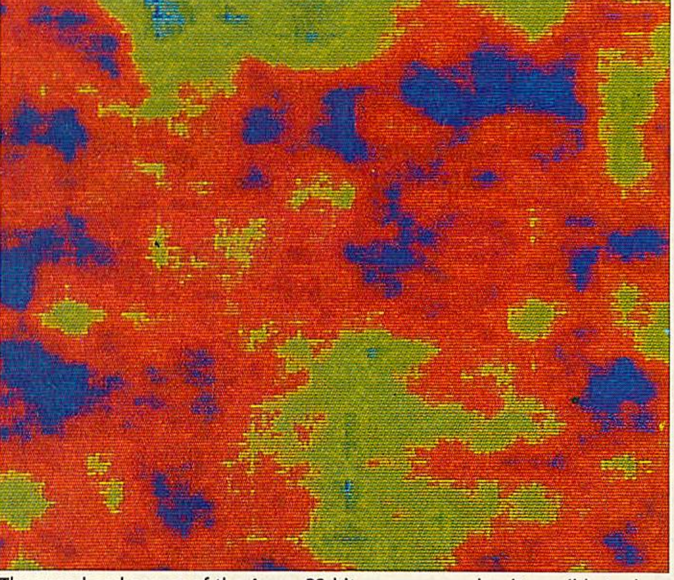
Watch the chaos pendulum do its own swing



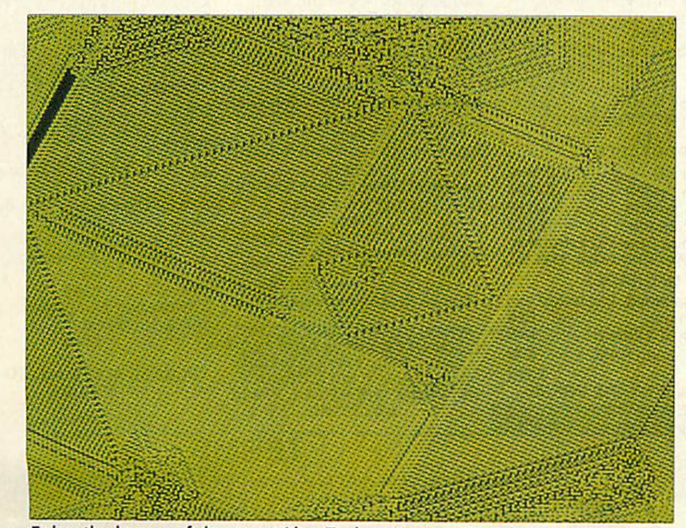
A Pythagorean tree grows to its full height



Glide over a 3D landscape, but watch out for high mountains



The speed and power of the Acorn 32-bit processor makes it possible to do many calculations per second, and makes it possible to write Plasma32



Enjoy the legacy of the great Alan Turing. Here, a 'Turmite', a two-dimensional Turing machine, draws out an enigmatic pattern

The Datafile

The Archimedes Public Domain and Shareware Library

Catalogue and Demonstration Disc X

!Dolphin	One of the best mode12 desktop toys. This one features a colourful jumping dolphin.	*Paul Kerry and Gill Harper.*
!KeyWindow	This provides you with an on screen function key strip complete with 12 ready to use keystrips.	*Richard G. Hallas*
!Stracker	A very good STracker player with many features such as a keyboard, control panel, multiplay and many more.	*William Delves*
!VDUrest	A small screen burn saver that gives you a 3D star field	*The Arc Sailor*
!Wordgames	A multi tasking word game package to help pupils to develope their reading skills.	*Dave Walsh*
Jade	A musically superb STracker module.	*Weird Science*
Xmas Draw	A set of very high quality, hand drawn, drawfiles of Santas and Snowmen.	*Richard Stubbs alias The Gnelf*

Pick 'n' Mix

For £1.75 per disc you can now decided what software you want on your discs. All files will be archived to give you the maximum amount of PD per disc. Standard discs are £1.25 each with one free for every 10 discs ordered.

Cat /Demo disc only £1

This disc is supplied on Branded Media as are all of the libraries discs. It contains over 750k of archived PD and the comprehensive Datafile catalogue which features: 900k of information on 16 sections, such as : Archived file sizes - Version numbers - Authors names and good program descriptions. The catalogue is updated weekly so whenever you order the catalogue is current

REGISTERED USERS

For £5 a year you can receive the bi-monthly Cat/Demo discs automatically and be entitled to two free discs for every ten you order during the period of registration.



The Fancy Font Factory Outline fonts Discs.

FFF Disc One

Beer - BIB - Bigfoot - Candy - Cardin - Croiant - Elate & Fields

Plus 12 family members

FFF Disc Two

Cornice - Georgian - Graphikal - GreyFrair - HANDY - Kaiset & Liorua

Plus 14 family members

The fonts on these FFF discs have been designed by Chris Archer. They contain the full character set and have taken some nine months to complete. Each disc costs £7.50 which is outstanding value. Site and regional licences are available. Details on request. A samples disc is available that will allow you to print out each fonts name and a few numbers and samples of future fonts still being designed. *Samples disc only £1.*

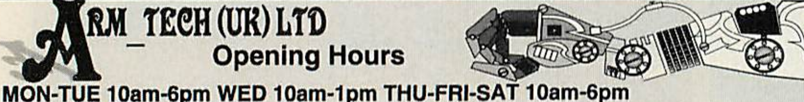
Highly recommended from The Datafile.

New Dawn a disc based magazine in a class of its own.
Games Disc 23 - Cyrinus2 a graphical adventure.
Games Disc 29 - F18 Hornet a superb flight simulator.
Utility Disc 19 - Powerbase an impressive database.
Utility Disc 27 - Translator ver 7.1 graphics display App.
Demo Disc 105 - FunkyDemo brilliant sound & graphics.
Graphics Disc 97 - 3 great rally GIF files plus the desert2 scene that's on the RISC OS 3 User Guide. Requires !Translator.

These discs are £1.25 each.

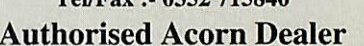
For the Datafile and Cat/Demo discs make cheques payable to The Datafile. For the FFF discs please make cheques payable to FFF. If you send £1 coins please tape them to a piece of card. Send all orders to:

22 Duxford Drive, Aldergrove
Co.Antrim BT29 4BG



MON-TUE 10am-6pm WED 10am-1pm THU-FRI-SAT 10am-6pm



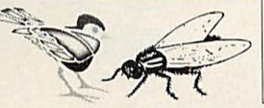


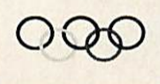
86 Meadowbank, Moor Lane, Holway
Holywell, Clwyd. CH8 7EF
Tel/Fax :- 0352 715840

Authorised Acorn Dealer

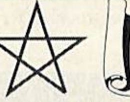






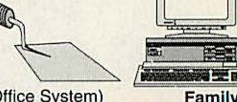
















Studio Graphics

Top quality scalable Clip-Art. We have 7 sets available on various subjects. (Ideal For Schools)

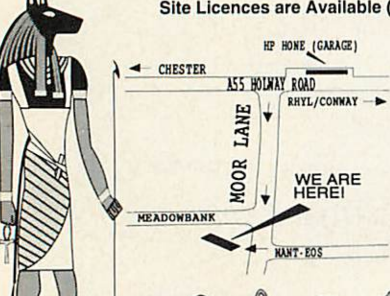
SG001 Egypt 100+ files on this disc (Colour £8+vat)
SG002 Flags of the world 270 files (Colour 2 Discs £15)
SG003 General 100+ files (Colour & B/W £8 +vat)
SG004 Christmas 100+ files (Colour & BW £8 +vat)
SG005 General 100+ files (Colour & BW £8 +vat)
SG006 Borders & Cartoons (Colour & BW £8 +vat)
SG007 Borders For Use Within Poster 100+Files (£10)

My World Utilities Discs

Created by Dave Hollett these discs are top quality multi-layer drawings for use with the My World program. Ideal for Schools, and a useful tool for the National Curriculum (KS 1/2). Coming Soon MW003 Ancient Greece.

Disc MW001 ANCIENT EGYPT	£12.95
Disc MW002 CHRISTMAS	£9.99

Site Licences are Available (Call For Details)



Where to find us

From Chester follow old A55 past Holywell until you see Moor Lane on your right, turn down Moor Lane, we are at the bottom (Big White Farm Gate). From Rhyl (As Above) but turn left into Moor Lane before Holywell

A5000/80 MultiScan Monitor 2 Meg RAM 80mb HD
£1399
A5000/80 As Above With Printer.
£1611
A5000-LC Learning Curve System with MultiScan Monitor. Acorn DTP, Ist Word+, Genesis+, PC Emulator, and Pacmania, 80mb HD. etc.etc.
£1445
A5000-LC As Above But With Acorn JP150 Printer.
£1658
A50004MHD120 MultiScan System. 4meg RAM 120meg HD.
£1599
A50004M HD120 As Above With Acorn JP150 Printer.
£1811
ACORN POCKET BOOK
256k RAM 16-bit NEC Processor
£213

A4 PORTABLE

A4 4meg 60meg HD	**£1699**
A4 2meg Floppy System	**£1399**
A4 2meg RAM Upgrade	**£110**
A4 60meg HD Upgrade	**£350**

A4 4/60 Includes Free PC Emulator Version 1.8 (Offer Ends Dec 31st 92)

RAM UPGRADES

A3000 IFEL up to 2meg, this board can be upgraded to 4meg.	**£59**
A3010 1meg (Up To 2meg)	**£45**
A5000 2Meg To 4meg RAM.	**£99**
A540 4Mb RAM.	**£399**

CALL FOR SOFTWARE PRICES

RISC-0S 3.10 ROMS £42

A4000/80 (Home Office System) with ARM 250 Processor, Acorn Colour Monitor, 80meg HD. Software Pack Which Includes EasiWriter 2, Desktop Database. etc,etc.
£999
A4000/80 As Above But With Acorn JP150 Printer.
£1211
A4000/80 (Home Office System) With MultiScan Monitor.
£1049
A4000/80 As Above But With Acorn JP150 Printer.
£1261
A4000HD80 System With Acorn Colour Monitor.
£949
A4000/HD80 As Above But With Acorn JP150 Printer.
£1161
A4000/HD80 MultiScan System.
£999
A4000/HD80 MultiScan System With Acorn JP150 Printer.
£1211

Syquest Removable Drives

Syquest 44meg Removable	£289
Syquest 84meg Removable	£399
Syquest Cartridge 44/84Mb	£69/£99

Cases for the above add £79

WHEN BUYING ANY ACORN COMPUTER FROM ARM TECH AND PAYING BY CASH OR CHEQUE WE WILL DEDUCT 5% FROM THE RETAIL PRICE AS LISTED

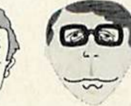
Family Solution

A3010 With ARM 250 Processor 1Mb RAM 1.6 Floppy 2 Joystick Ports EasiWord. Will Also Connect To Your TV. etc,etc.
£424
A3010LC With ARM 250 Processor 1Mb RAM 1.6 Floppy 2 Joystick Ports EasiWord, Genesis Collection, PC Emulator. Acorn Colour Monitor, Will Also Connect To Your TV. etc,etc.
£680
A3010LCP As Above But With Printer
£892
A3020 Floppy System With Acorn Colour Monitor, ARM 250 Processor 2Mb RAM, 1.6 Floppy. etc,etc.
£749
A3020 As Above But With Printer
£961
A3020FD MultiScan System
£799
A3020FD As Above With Printer
£1011
A3020HD60 With 60Mb HD Acorn Colour Monitor 2meg Ram. etc,etc.
£899
A3020HD60 As Above but with MultiScan Monitor
£949

PLEASE ADD V.A.T. TO ALL PRICES





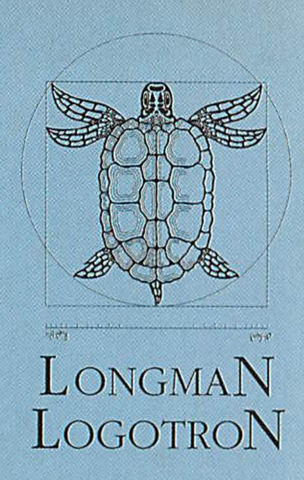




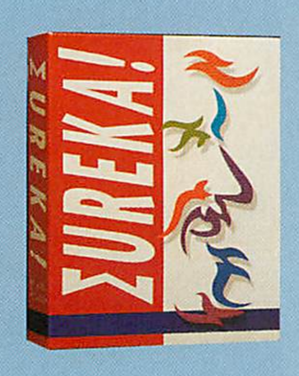


TERMS

UK residents add 17.5% VAT to all prices except books. Prices and manufacturers specifications subject to change without notification. Goods offered subject to being unsold and/or available. Goods not offered on trial basis. Orders under £25 sent recorded delivery please add £1. Next day delivery £12. All goods despatched within 48 hours subject to availability. Restocking fee on non-defective returns.



THE SOFTWARE

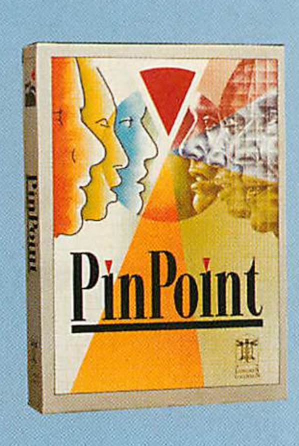


Eureka

The tool for making numerical calculations and organising financial analysis.

Eureka brings the power and innovative features of the latest PC and Macintosh spreadsheets to the Acorn World. Taking full advantage of the Multi-tasking operating environment, Eureka is simply the best RISC OS spreadsheet available - bar none. Whether you judge it on ease of use, comprehensiveness, speed or flexibility nothing comes close.

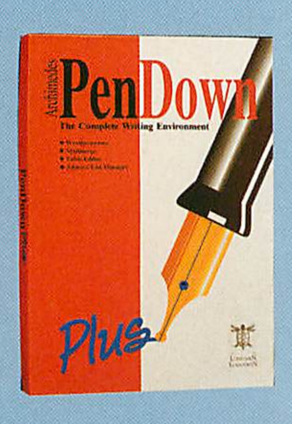
"There is no doubt that Eureka will immediately become my first choice of spreadsheet: it will be a tool I use everyday."
Graham Bell - Acorn User



PinPoint

PinPoint's facilities provide sophisticated output that can rival some leading desktop publishing packages. The Graphical Information Analysis tool gives you 2D and 3D pie charts, bar graphs and line graphs, as well as scatter graphs and line of best fit capabilities. Powerful Graphical Report tools allow you to create graphic presentations from your information in an intuitive way. These can be enhanced with a wide variety of lines, boxes, text styles and pictures (sprites and drawfiles) - all in full colour.

"PinPoint demystifies databases, aids analysis, simplifies statistics and positively promotes presentations."
Chris Davies. Times Educational Supplement



PenDown Plus

Create, edit, save and print your word processing documents in this powerful, easy to use WP package. Manage your name & address information, mail merge documents for mailing, print labels, edit tables - export and import your information in CSV and TSV formats.

"Newcomers will find a fully featured wordprocessor, mail-merging, table editor, and an address list manager - all clearly explained in a comprehensive booklet."
Phil Taylor - Acorn Computing

All current best sellers from Longman Logotron. Latest releases. No cut-down versions.

D A B H A N D



THE HARDWARE

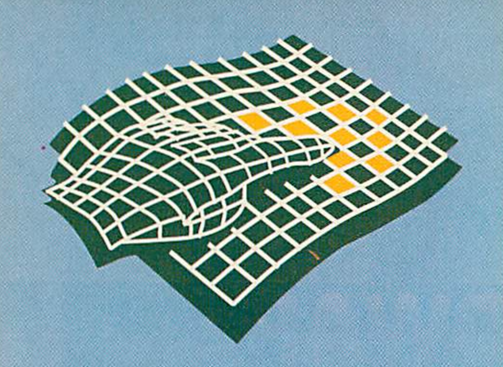




Acorn A3020PS	
CPU (32-bit RISC processor)	ARM 250
Operating System	RISC OS 3
Main memory (expandable to 4MB)	2MB
ROM	2MB
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Hard disc	60MB IDE
Parallel / Serial	Standard
Network interface slot	Standard
Free expansion slot	1
3.5mm jack for stereo sound	Standard
Internal mono speaker	Standard
Multi-Scan Monitor	Standard

Acorn A5000PS	
CPU (32-bit RISC processor)	ARM 3
Operating System	RISC OS 3
Main memory (expandable to 4MB)	2MB
Embedded cache	Standard
ROM	2MB
Internal hard disc (formatted)	80MB
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Parallel / Serial	Standard
SCSI controller	Optional
IDE controller	Standard
Free expansion slots	4
3.5mm jack for stereo sound	Standard
Econet / Ethernet interface	Optional
Multi-Scan Monitor	Standard

FREE
3 YEARS ON SITE WARRANTY



THE DEAL

Option 1

Acorn A3020PS	
CPU (32-bit RISC processor)	ARM 250
Operating System	RISC OS 3
Application suite	Standard
Main memory	2MB
Expandable to	4MB
ROM	2MB
Internal hard disc (formatted)	60MB IDE
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Mouse (3 buttons)	Standard
Parallel centronics bi-directional	Standard
Serial	Standard
Network Interface Slot	Standard
Free expansion slot	1
3.5mm jack for stereo sound	Standard
Internal Mono Speaker	Standard
Multi-Scan Monitor	Standard
3-years On-Site Warranty	**Standard**
Eureka!	**Standard**
PinPoint	**Standard**
PenDown Plus	**Standard**



Option 2

Acorn A5000PS	
CPU (32-bit RISC processor)	ARM 3
Operating System	RISC OS 3
Application suite	Standard
Main memory	2MB
Expandable to	4MB
Embedded cache	Standard
ROM	2MB
Internal hard disc (formatted)	80MB
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Mouse (3 buttons)	Standard
Parallel centronics bi-directional	Standard
Serial	Standard
SCSI controller	Optional
IDE controller	Standard
Free expansion slots	4
3.5mm jack for stereo sound	Standard
Econet interface	Optional
Ethernet interface	Optional
Multi-Scan Monitor	Standard
3-years On-Site Warranty	**Standard**
Eureka!	**Standard**
PinPoint	**Standard**
PenDown Plus	**Standard**



TERMS & CONDITIONS

• **UK residents** add 17.5% VAT to all prices. • **Carriage** *FREE on all items in the UK (*with the exception of 'remote' areas).
• **Foreign orders**, quotations available. • **Cash with Order** - Access/Visa/Switch • **Official orders** - Education/Public & Private Sector

D A B H A N D



Demonstrations



Support



Hotline

061 766 8423

5 Victoria Lane
Whitefield • Manchester M25 6AL
Telephone: 061 766 8423
Fax: 061 766 8425







Immediate Credit Card Despatch - subject to availability

Education Discounts - please ring for details

Why wait for ONE good reason to buy when we can give you THREE!

RELIABILITY
UPGRADABILITY
AFFORDABILITY

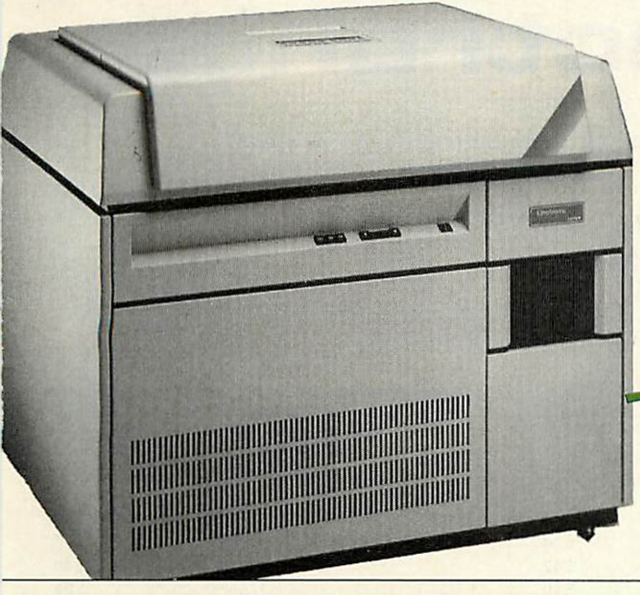
Eureka! • PinPoint • PenDown Plus



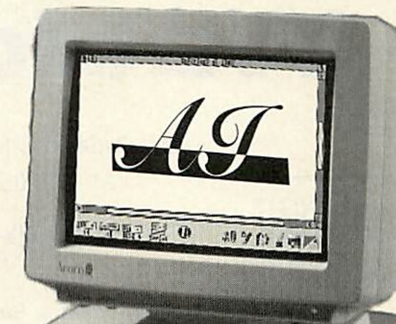


DIRECT FROM YOUR ARCHIMEDES TO FILM

on our Linotronic™ PostScript™ Imagesetter









What We Do
Produce colour separations, proofs and visuals from your Impression II™ documents. We also accept Acorn DTP documents, Sprites and Drawfiles plus all standard file formats.

Discounts
Given to all ISV & Education customers.

Output
Resolutions up to 1693 dpi. Screen rulings up to 150 lpi.

Fonts
All Acorn & Electronic Font Foundry PostScript compatible fonts supported.

FREE SCANNING In mono or colour for our first 500 customers.

Tel (0733) 315424
or write to:
Arch Images
6C Belgic Square
Fengate
Peterborough
Cambs
PE1 5XF

A4 FILM
with crop marks
£6.00





Established 1983

BANK MANAGER
Complete and versatile personal accounts program. Consistently acclaimed!
'data entry is a delight...professional...excellent product'
'Impressed...ideal...easy to use'
Enter cheques and receipts. Automatic date sequencing. Reconcile statements. Search, amend and delete. Analyze expenditure. Forward cash flow forecast. Budgets. Up to 36 bank accounts online, inter account transfers, 9999 standing orders, 99 analysis headings, unlimited postings (depending upon disk space). Reports to screen or printer. Mix foreign currencies, graphics, password, file recovery, field editing, programmable reports, Arc RAM disks, wild card analysis enquiries, sort and more.
Bank Manager £25.00

BUSINESS UTILITY
For the club accounts or small business user. Prints a "trial balance" or "P&L reports" via the programmable spreadsheet generator. Needs the Bank Manager. Saves hours of work.
Bus Util Pack £12.00

TYPING TUTOR
Quickly learn to touch type. Over 90 smoothly graded lessons graduate you from the basic home keys to complete keyboard mastery. Word scan or exact key checking, targets may be revised, rhythm metronome, key click, free format options. Recommended for adult education.
Typing Tutor £15.00

SPREADSHEET MK V
Low cost, versatile spreadsheet. 26 cols by 900 (Arch) or 99 (BBC B) rows, loaded with many functions and facilities inc programmable report writer and input scripts.
Spreadsheet MK V disk £15.00

Add £1 p&p per order (Overseas £3.50). Programs suitable for all Archimedes, A3/4/5000, BBC Master, Compact and BBC B series. State computer type (eg A3000, BBC B etc) and disk type (eg 3½" or 5¼" 80 track or 5¼" 40 track)

CONTEX COMPUTING
(Ref AU), 15 Woodlands Close,
Cople, Bedford MK44 3UE




Tel: 0234 838347

UNIQUEWAY



Full details of our Acorn Replay compression service available on request. Normal turnaround 72 hrs for 12.5 fps CD-ROM Movies. Educational enquiries especially welcome. Demonstration CD-ROM and discs available soon.

OFFICIAL ACORN REPLAY COMPRESSION CENTRE
Authorised Acorn Dealer and Value Added Reseller.
Multi-media and DTP are our speciality.

A4 Portable 4Mb RAM 60Mb HD	**£1699**
A5000 Learning Curve, 80Mb HD and free extra 2Mb RAM	**£1445**
A3010 Learning Curve	**£680**
Acorn Pocket Book	**£212**
RISC OS 3 Upgrades	**£41.70**

Postage, Packing and Insurance £12 on all items.





All prices exclude VAT.
E&OE

Mail order Telephone 0222 615782 or 0223 410138 (p.m only)

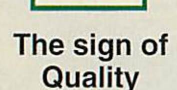
RETAIL SHOP NOW OPEN
42 CRWYS ROAD, CARDIFF
TELEPHONE 0222 644611 FAX 0222 644622
Thursday 10-8, Friday 9.30-6, Saturday 9.30-6.

Watford Electronics

(A member of the Jessa group of Companies – Established 1972)

Mail Order & Showroom: Jessa House, Finway, off Dallow Road, Luton, LU1 1TR, England

Tel: 0582 48 77 77 Tlx: 8956095 WATFRD Fax: 0582 488 588



The sign of Quality

Showroom Only: Jessa House, 250 Lower High Street, Watford WD1 2AN, England

Tel: 0923 237774 Fax: 0923 233642

Shop Hours: 9am to 6pm (Mon.-Sat.) Thursday 9am to 8pm. FREE customer car park.

All prices exclusive of VAT; subject to change without notice & available on request.

Acorn

The choice of Experience

Archimedes micro

System	Basic	Colour	Multiscan
A3010-1Mb Family	£424	£584	£749
A3010-2Mb L/C	–	£680	–
A3020-2Mb FD	–	£749	£799
A3020-2Mb HD60	–	£899	£949
A4000-2Mb HD80	–	£949	£999
A4000-Home Office	–	£999	£1049
A5000-2Mb HD80	–	£–	£1399
A5000-L/C 2Mb HD80	–	–	£1445
A5000-4Mb HD120	–	–	£1599
A5000-2Mb ES	–	–	£1299
A5000-2Mb NS	–	–	£1399
Pocket Book	£212	–	–
Pocket Book Class	£2127	–	–

Acorn Inkjet Printer add £199

For more Printers, see pages 5 & 6

Archi A4 Notebooks

A4 Notebook with 2Mb RAM	£1399
A4 Notebook 4M RAM/60M HD	£1699

FREE OFFER

When you purchase any of the above Archimedes Micros, we will give 10% of the value of the machine in Hardware or Software of your choice

Archi Accessories

- 3.5" 800K 2nd Floppy Drive (305/310) £118
- 5.25" 800K external Floppy Drive £80
- I/O Podule (Analogue/User/1MHz bus) £79
- I/O Podule (Analogue/User) £49
- MEMC 1A Upgrade £29
- MIDI add-on to I/O Podule £27
- MIDI Expansion Card £65
- Econet Network Board £42
- Archi replacement mouse – New design £29
- PC Emulator v1.9 £95
- Software Developers Toolbox £149
- Floating Point Unit £455
- SCSI Adaptor Expansion Card £156
- Keyboard Extension Lead £6
- 2 Podule Backplane £20
- 4 Podule Backplane £25
- Fan for above backplanes £10
- Risc Os Extras Software Disc £5
- Ethernet Card £149
- SCSI Card 8 bit £129
- SID Utilities Disc 1 £5
- SID Utilities Disc 2 £5
- SID Utilities Disc 3 £5
- SID Utilities Disc 4 £5
- A5000 Dust Cover 2pcs £9pr

Risc OS 3 Upgrades

- A 5000 Software Upgrade Kit £16
- Software Upgrade Kit for the rest £40
- Hardware Upgrade Kit 300/440 £25

A3000 Accessories

- 3.5" External Drive £95
- Monitor Stand £15
- Technical Manual £39
- Serial Upgrade £19
- A3000 Dust Cover £5
- A3000 plus Monitor Dust Cover £9
- A3000 User Port/Midi Upgrade Card £44
- A3000 User/Analogue/IIC I/O Card £42
- A3000 External Podule Case £15

A5000 Hard Disc Drives

- **A5000** – 100Mb 18mS Hard Disc Upgrade £269
- **A5000** – 210Mb 18mS Hard Disc Upgrade £395

Archimedes Hard Disc

Watford's ST506 Hard disc drives for A310 & A410 series fit internally into the space provided. P.S. A310 upgrades require a backplane and a fan.

- **3HDP** – Hard Disc Podule only £99
- **3HD40** – 40Meg H' Disc + Podule for 310 £285
- **3HD50** – 53Meg H' Disc + Podule for 310 £359
- **4HD20** – 20Meg Hard Disc for 410 £69
- **4HD40** – 40Meg Hard Disc for 410 £195
- **4HD50** – 53Meg Hard Disc for 410 £260
- A3000 20Meg Hard Disc + Podule £279
- A3000 40Meg Hard Disc + Podule £379

Acorn A3010 Family Pack

Supplied with 3.5" Floppy Disc Drive and a mouse, upgraded to 2Mb RAM, Colour Monitor and lead, TV modulator, 30Mb fast IDE Hard Disk Drive, 'Compression' utility to increase the Hard Drive capacity to typically 60Mb, the highly acclaimed Computer Concept's Impression Junior DTP package, EasiWord wordprocessor, Quest for Gold game, applications suite of software packages and comprehensive audio training tape.

RRP: £1095

Sale Offer Price: £765

Above Package plus Acorn's Learning Curve **£879**

Special Education discounts available on micros, RAM upgrades, ARM 3 Turbo Card, etc. Please write in or telephone:

0582 48 77 77

Leasing facility now available. Please telephone or write in for details.

More Archimedes Products See Pages 3, 4, 5, 6, 7, 8

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

- **R300**-4 Layer RAM upgrade board (Bare). £25
- **R302-A3000** – to 2MB RAM Upgrade £29
- **R303-A3000** – to 2MB RAM Upgrade (expandable to 4MB) £49
- **R304-A3000** – to 4MB RAM Upgrade £99
- **R305-A3010** – to 2MB RAM Upgrade £29
- **R306-A3020** – to 2MB RAM Upgrade £45
- **R311-A305** – to 1MB RAM Upgrade £30
- **R312-A305/310** – to 2MB RAM Upgrade £99
- **R314-A305/310** – to 4MB RAM Upgrade £199
- **R412-A410/1** – to 2MB RAM Upgrade £25
- **R413-A420/1** – to 4MB RAM Upgrade £50
- **R414-A410/1** – to 4MB RAM Upgrade £75
- **R810-A410/1** – to 8MB RAM Upgrade £579
- **R820-A420/1** – to 8MB RAM Upgrade £549
- **R840-A440/1** – to 8MB RAM Upgrade £479
- **R814-R140** – to 8MB RAM Upgrade £499
- **A5000** – to 2MB additional RAM Upgrade £82

Desk Top Publishers

Acorn's Archi DTP Package	£69
• Equasor £39; **• Expression-PS**	£19
Impression 2 DTP Pack	£123
Impression Junior	£69
Impression Business Supplement	£39
Impression II Borders Disc	£19
Ovation DTP	£89

Archi Wordprocessors

Pendown Archi	£48	PD Spellchecker	£40
Pendown Plus	£79	Graphic Writer	£19
Pendown Outline Fonts	£18	Easiwriter	£115
1st Word Plus – 2	£63	EasiWord	£58

Databases

Flexifile	£79	Multistore v2.01	£176
Knowledge Organiser	£42	Pinpoint	£65
Magpie	£40	Pinpoint Junior	£23

Spreadsheets

Eureka	£99	Schema	£89

Business Graphics

GammaPlot	£39	Sigmaplot	£39

Integrated Packages

- Pipedream 3 £116 • Pipedream 4 £146
- Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications £98
- Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school £75

Computer Concept's professional Art package ArtWorks £139



CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

Hi-Speed, Low Cost Archi Hard Disc Drive

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine. An optional 20Mb or 40Mb hard disc can be supplied on the podule expansion card itself, with its fast transfer rate and power saving modes the drive is ideal for storing *commonly* used software such as the !Fonts application.

A powerful security feature has been provided with the two unique commands *IDELock and *IDEUnlock, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELock as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

Hardware

- Single width EuroCard
- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Optional on-card 20Mb or 40Mb hard disc
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software

- Conforms fully to the Acorn IDE Specification
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Up to four drives over multiple cards
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs

Prices

Part No.	Capacity	Access Speed	Price
ADA 0520	44Mb	28mS	**£195**
ADA 0530	100Mb	16mS	**£295**
ADA 0570	200Mb	15mS	**£449**
ADA 0580	330Mb	15mS	**£799**

All the above 3.5" hard drives are supplied complete with Controller Card, cable & Software on ROM. (Internal fitting). For use with A300/A400/A500 series machines.

For A3000 users an additional external Case and PSU will be required.

AAA 0300 External Case & PSU for A3000 **£85**

Internal Hard Disc Drives for A3000

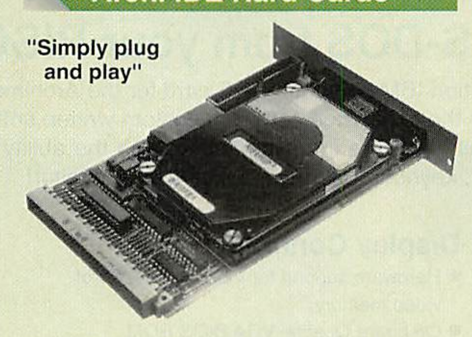
State of the art, 4 layer internal IDE Hard Cards for the A3000. Software supplied in, On-board ROM.

ADA 0770	30Mb	19mS	**£185**
ADA 0720	40Mb	19mS	**£279**
ADA 0750	60MB	18MS	**£329**
ADA 0730	80Mb	18mS	**£399**

Supplied ready assembled. No soldering required. Simply plug into the allotted space.

Archi IDE Hard Cards

"Simply plug and play"



Watford's easy to instal, low cost, high performance, revolutionary IDE Hard Cards for the A300 & A400 series Archimedes.

ADA 0800	30Mb	19mS	**£195**
ADA 0660	40Mb	28mS	**£289**
ADA 0810	60Mb	18mS	**£339**
ADA 0670	80Mb	18mS	**£409**

(Can be used as a Removable Hard Drive)



Archimedes A300/A400 SCSI Hard Disc Offer

(while stocks last)

100MB Hard Disc Upgrade complete with Controller card, Cables, Formatter and Manuals

RRP: £799

Offer Price: £289

Syquest Removable Disc Units

These Hard Drive units are supplied complete with a cartridge 42Mb removable, cables and a high flow fan for cooling.

- Syquest Drive Unit pack £379
- As above + SCSI Card £415
- Spare 42Mb Disc £55

Archi to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.

New RISC OS Version also available (please specify)

- For A3000 £15 • For A5000 £16

For A3000 Serial Upgrade **(£19)** required

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

Features

- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices.

£42

Minerva's Archimedes Software

EasyWord	£18	Time Tabler	£549
Home Accounts	£35	System Delta	£59
System Delta Program Reference Manual			£29

Stand alone Business Accounts Packages

Sales; Purchase; Order Processing and Invoicing; Nominal; Stock management

£79 per module

or Complete Business Package **£325**

ARM 3 Turbo Card MkII

Simply The Best



Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £169. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.

Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £18.

(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

RRP £249

Christmas Offer £145

Acorn have satisfactorily evaluated Watford's ARM 3 upgrade and the A3000 upgrades are fitted by Acorn approved surface mount technology centre, therefore its fitment will not invalidate Acorn's warranty on the micro.

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheet, ADFS, BASIC Editor & TERMINAL plus FREE OFFER (see below) **£375**

FREE with every BBC Master purchased from us during November

A 5.25" Double Sided, 40/80 track switchable 400K Disc Drive complete with cables and a Utilities disc incl. 2 games, plus

Gemini's OFFICE MATE & OFFICE MASTER

Add-Ons & Accessories

Econet Module for the Master	£42
Twin ROM Cartridge for Master	£9
Quad ROM Cartridge for Master	£14
Master Reference Manual I	(No VAT) £14
Master Reference Manual II	(No VAT) £14
Master Advance Ref Manual	(No VAT) £14
64K Upgrade Kit for B+	£32
Acorn 1772 DFS Kit complete	£49
ECONET Upgrade Kit for BBC B	£42
ALL ECONET UPGRADES Available	
ARIES' IEEE Interface for BBC B & Master	£238
Morley Teletext Adaptor with ATS Rom	£99
Ecolink	£270

Continued→ → → → → → → → → →

Watford Electronics Aries PC Card

Access the world of MS-DOS from your RISC OS based computer

Watford Electronics brings you a full specification IBM compatible PC card for the Archimedes. You *no longer* require the Archimedes PC Emulator, all PC software is run locally on the expansion card with custom written software to interface the PC card into the RISC OS environment. The expansion card is a full hardware implementation, with the ability to be turned into an ISA Bus, fully fledged 386 PC just by the addition of a power supply, keyboard, storage device and a monitor!

Processor

386SXL 33MHz low power processor. Socket for optional 387SX 33MHz numeric co-processor.

On Board Peripherals

- Uses 82C107 single chip solution.
- 128 bytes of battery backed CMOS RAM.
- AT compatible Keyboard Controller.
- Uses standard Archimedes keyboard and mouse. Full standard ISA 16 bit expansion bus available.
- Optional expander allows one or two half size PC cards to be installed in the adjacent Archimedes expansion slots.

Memory

- Uses 82C311 memory controller 2Mb zero wait state DRAM as standard, upgradable to 4Mb DRAM just by adding 4 more chips.
- Bank interleaving and page mode memory operation for maximum performance.
- On-board BIOS ROM.

Display Controller

- Hardware support for VGA with 512Kb of video memory.
- On board Quadtel VGA BIOS ROM.
- Multitasking screen display on RISC OS.
- Desktop can be achieved in software.
- Separate VGA monitor can be connected for simultaneous RISC OS and PC display or your Archimedes VGA compatible monitor can be used with optional video switch.
- Much faster and improved video speed compared to PC Emulator.

Hard & Floppy Disc

- Full background disk access, the Archimedes is not adversely affected.
- Any existing Acorn PC Emulator hard disk partition can be used, with the ability to create new PC hard disk partitions on any RISC OS hard disk.
- Optional IDE hard disk and floppy drive option for direct connection of a dedicated hard disk and floppy to PC card.
- Access to the Archimedes floppy disc drive for reading and writing of PC disc formats from PC.

Bundled Software

- MS DOS 5.0, Lotus Works and PC *Organiser*

Sound

- Uses the Archimedes internal speaker by connecting to the Auxiliary sound connector.

Enhancements

Optional expansion card will be available either hardware parallel and serial ports or the ability to connect an external AT style keyboard and mouse.

The PC card can also be plugged into a stand alone backplane to form the heart of a fully expandable, industry compatible 386SX computer, with no reliance upon the Archimedes.

Specifications may be subject to change. E&OE.

Call, fax or write now for more details!

Scan256 – The only sensible scanner purchase

Scan256 – the innovative 256 grey-level hand scanner for the Archimedes range of micro computers. It offers up to 256 grey levels at a maximum of 400 dpi, and comes complete with the most advanced and sophisticated 256 grey scale scanner software currently available for the Archimedes.

- Multiple copies of the image in memory at once.
- Allows multiple consecutive operations without having to save the original image to disk.
- Instant re-draw of all 4 image buffers.
- No re-calculations needed unlike other packages that use on the fly screen-dithering.
- Highly advanced dithering and image size reduction.
- Available via industry standard Change FSI package for maximum image quality. An invaluable aid to reduce the size of the image whilst maintaining maximum image quality.
- Advanced in-built image processing options.
- Convolution digital filtering fully implemented with over 100 filters covering edge detection, image enhancement and image smoothing. Enables high quality images to be obtained from poor quality scans.
- A unique L.E.D. indicator on the scanner.
- Shows you when the scanner is being moved at close to the maximum scanning speed, not just when it is too late and a scan line has been missed by moving the scanner too fast.
- Fully adjustable scale and size of image preview when scanning
- Hand held scanner image preview window can even be behind other windows and preview is shown in real-time with maximum number of grey-scales available.
- Support for The Serial Port Graphics Enhancer.
- Forthcoming support for the State Machine G8 Graphics Card.
- Allows up to 256 simultaneous grey scales on screen at once.
- True brightness, contrast and gamma correction.
- All can be specified by a value to exactly match monitor/printer. No guessing with shapes of curves and correction is mathematically correct.
- RISC OS 3 features.
- Include rotation and shearing. Scans normally are scanned at a slant rather than being rotated, shearing enables the scan to be corrected better than rotation.
- Fast RISC OS printing.
- Multiple options such as scale to page, centre, sideways selected area, and any scale.
- Scanner scans at an amazing 3ms per line.
- A post card at 400dpi takes only 7.3 seconds to scan, creating over 3Mb of data.
- Selectable scanning modes.
- 256 grey-scale, 256 grey-scale half width, 16 grey-scale and monochrome scanning modes. Half width mode enables longer 256 grey-scale scans to be achieved.
- Save image foreign formats.
- Save as industry standard TIFF for exporting to other systems, AIM for further processing, or RISC OS Sprite format.
- Single width, high quality podule using surface mount technology

The only sensible scanning and image processing solution for the Acorn Archimedes. Just compare the features, there can only be one choice...

Scan256 Scanner, Interface Card, Software and Manual Only £185

Please specify Archimedes type.
Not compatible with A3010, A3020, A4000

Call now for details about our new Scan256 Flatbed Professional Scanner

BBC Education Software

A vous la France	French programs for beginners	£29
Au restaurant/Accident de route	French games for 12 years +	£26
Bolougne and oh les	French program for beginners	£26
Computer control	Program simulating computer control	£26
Computers at work	Primary education program	£17
Espana Viva	Spanish educational programs	£20
Folks Tales	Listening and reading for ages 7+	£22
Geordie Racer	Look and read for ages 7+	£22
Hall of Mirrors	Practice word & number skills	£22
Help your child learn basic mapwork 2		£18
Inside Science	Four common science subjects	£22
Letters and pictures	Educational programs for 6-8 years	£15
Make a wildlife garden	Explore wildlife/weather/garden growth	£22
Maths with a story 1	Primary level maths programs	£20
Maths with a story 2	4 further maths programs	£20
Note invaders	Learn sheet music for 7-Adults	£15
Numbers & Pictures	Early number learning (4-6 years)	£15
Picture craft	Geometrical design & Colouring	£17
Puncman 1 & 2	Learning Punctuation (7-13 years)	£15
Puncman 3 & 4	Learning Punctuation (8-14 years)	£15
Puncman 5, 6 & 7	Learning Punctuation (8-15 years)	£15
Ramayana Tales	Simple Desktop Publisher using pictures & characters from the Ramayana	£22
Skyhunter	Look and read educational adventure	£22
Technology and design	Problem solving programs	£22
Through the dragons eye	Adventure game and Map reading	£22
Fun School 3 (Under 5)	Varied range of Education subjects	£17
Fun School 3 (5-7)	Varied range of Education subjects	£17
Fun School 3 (Over 7)	Varied range of Education subjects	£17

Archi Educational Software

- Animated Alphabet (3-6 yrs) £21
- Arcventure (8-12 yrs) £29
- Bookbinder £43
- Bumper Disc £14
- Bumper Disc 2 £14
- Craftshop 1 £26
- Craftshop 2 £26
- Converta-Key £16
- Data Word £16
- Desktop Stories £35
- DigiSim £35
- Dream Time (5-7 yrs) £23
- Farm (5-7 yrs) £19
- Fleet Street Phantom (9-13 yrs) £25
- Fun School 3 Red (up to 6 years) £17
- Fun School 3 Green (6-8 years) £17
- Fun School 3 Blue (8 years +) £17
- Gate Array Teaching System £68
- Glimpse Clip Art Utility (7-16 yrs) £8
- Highlighter (6-16 yrs) £42
- Jigsaw £28
- Mapventure (9-13 yrs) £24
- Microbugs £24
- Money Matters £16
- Nature Park Adventure (7-9 yrs) £27
- Numerator £60
- Picture Book £16
- Recall (6-13 yrs) £39
- Sellardore Tales £24
- Snippet £26
- Space Mission Mada (9-13 yrs) –
- Sting of the Dump (9-13 yrs) £22
- Target Maths £16
- Viewpoints (9-12 yrs) £33
- Wizard's Revenge (7-10 yrs) £17
- Worst Witch (7-10 yrs) £25

Archimedes Software

GRAPHICS

3D Construction Kit	£39
Arc Light	£46
ARClist	£19
ARCticulate	£19
Art Works	£139
Atelier	£65
Artisan II	£45
Artisan Gallery	£16
Autosketch II	£65
CADet (CAD)	£140
Craftshop 1 & 2	£28
Euclid 2	£50
Graph Box	£59
Graphbox Professional	£107
HotLink Presenter	£40
Illusionist	£69
Kermit	£46
Mogul	£17
Poster	£79
Pro Artisan	£70
Prime Art	£69
Render Bender 2	£79
Revelation 2	£80
Snippet	£21
Titler	£119
Tween	£29

GAMES

Air Supremacy	£17
Apocalypse	£14
Arcade Soccer	£14
Boogie Buggy	£14
Break 147 + Supa Pool	£19
Bughunter in Space	£19
Cataclysm	£19
Chess 3D	£16
Chocks Away	
Compendium	£32
Chocks Away Extra	£14
Conqueror	£15
Corruption	£18
Cyber Chess	£38
Elite	£33
Enter the Realm	£19
E-Type Compendium	£20
E-Type Designer	£13
Family Favourites	£13
Grievous Bodily Arm	£19
Holed Out Designer	£13
Holed Out Golf Comp	£20
Hostages	£14
Inter Dictor 2	£26
Iron Lord	£15
Jigsaw	£27
Lemmings	£20
Lost Temple	POA
Mad Prof Mariarti	£17
Masterbreak	£16
Man at Arms	£14
MahJong Patience	£15
Manchester United II	£19
Mig 29	£24
Nebullus	£21
Nevryon	£14
Nevryon II	£20
Olympics	£14
Pandoras Box	£18
Pipe Mania	£17
Power Band	£14
Puncman 1 & 2	£16
Puncman 3 & 4	£16
Pysanki	£14
Quazer	£10
Real McCoy	£22
Real McCoy 2	£23
Real McCoy 3	£22
Redshift	£14
Return to Doom	£16
Repton 3	£14
Saloon Cars Deluxe	£27
Spitfire Fury	£22
Splice	£25
Sporting Triangles	£24
Superior Golf	£14
Superpool + Break 147	£22
Swiv	£19
Talisman	£12
Timewatch	£24
Trivial Pursuit	£22
Twin World	£15
U.I.M.	£23
White Magic 2	£15
Wimp Game	£13
Worldscape	£16
XFire	£19
Zelanites	£23

Miscellaneous

Ancestry	£59
Arccomm 2	£38
Arcterm 7	£64
Armadeus Sound	£60
Avante Garde Fonts	£23
BBC DFS Reader	£6
Broadcaster Loader	£65
Compression (CC)	£38
Equasor	£38
FlexiFile	£97
Genesis Plus	£68
Genesis 2	£99
Investigator 2	£22
JX Archi Colour Printer Driver for Citizen & Star Printers	£15
Magpie 2	£42
Notate	£42
Numerator	£66
Pin Point	£65
Presenter 2	£29
Presenter Story	£145
Prophet	£132
Prophet Demo Disc	£10
Rainforest	£17
Revelation 2	£95
Rhapsody in Blue 2	£45
Score Draw	£46
Show Page	£127
Speech!	£15
The Victorian	£17
Time Tabler	£549
Toolkit (Clares)	£35
Touchtype	£40
Tracker	£39
Turbo Driver BJ10E	£42
Vox Box	£46
WorldScape	£17

LANGUAGES (Archimedes)

ISO-PASCAL; FORTRAN 77	£77 each
Assembler; LISP; Prolog X	£149 each
Desktop C	£199
Macro Assembler	£40
Robo Logo	£69
BASIC Compiler	£77
Logotron Logo	£45
Risc Basic	£120
Risc FORTH	£110
Cambridge Pascal	£95

Archimedes External Disc Drive Interface

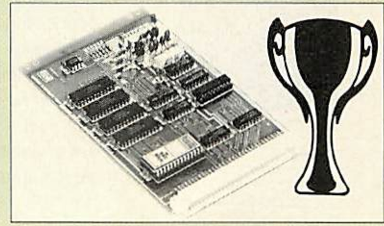
With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

Price £21

Back Plate Extension

- A300/400 £15;
- A3000 £14

Archi Real-Time Digitiser



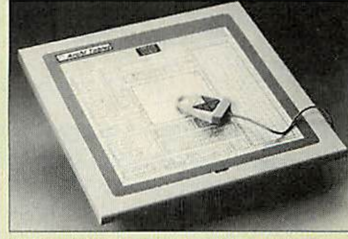
Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £119

A Set of Colour Filters for colour image grabbing using a video camera £16

Archi Graphic Tablet



The Archi Graphic Tablet offers performance and accuracy comparable to other tablets priced at well over £400, and has the unusual addition of a liftable cover, which can hold tracing material or menu templates securely. The package is supplied complete with sophisticated Archi software. (Now, fully LinCAD compatible. Recommended by Linear Graphic for use in Education).

(FREE this month, PC Mouse Drivers & Art package)

Special Price £199

(Price includes Tablet, Leads, Software & Puck)

Stylus Optional Extra **£20**

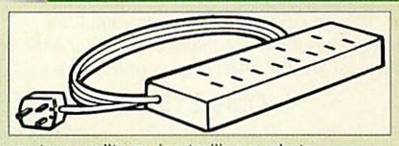
Archi Graphic Tablet Junior. Working area 9" x 6". Price includes Stylus **£125**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage translent spikes/surges caused by lightning or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket



4 way top quality mains trailing sockets.
Supplied wired up with mains plug ready for use.
Can be screwed to floor or wall if required.
Very useful for tidying up all the mains leads from your peripherals.

£9.50

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System

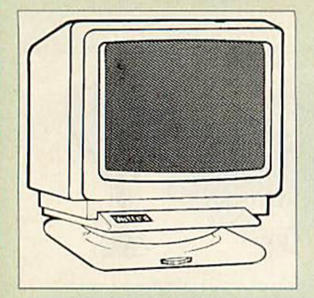
£16

8 Way DIP Switch

Increase the speed of your Disc Drives by soldering this switch to your BBC B or B+ keyboard

Only **£1.00**

Continued→ → → → → → → → → →



FREE Connecting lead with every monitor purchased from us. Please specify type required.

Microvitec Monitors

• **1431** – Standard Resolution Monitor	£169
• **1451** – Medium Resolution Monitor	£209
• **Cub3000** Medium Res for A3000	£189
• Dust Cover for Microvitecs	£5.50
• **Touchtec 501 Touch Screen**	£239

Now 3 years Parts & Labour warranty on all Microvitec Monitors

Multiscan Colour

• Eizo 9060S	£389	• Taxan 770LR	£335
• Eizo F550i	£725	• Taxan 787	£210
• Eizo T560iT	£1095	• Taxan 787LR	£230
• Eizo T660i-T 20"	£1119	• Taxan 795	£394
• NEC 3FG	£345	• Taxan 875	£670
• NEC 4FG	£442	• Taxan 875+	£705
• NEC 5FG	£827	• VIDC Enhancer	£25
• NEC 6FG	£1485		

Aries AlphaScan Monitor

Pound for Pound, the AlphaScan VGA Multiscan monitor provides the maximum performance and greatest flexibility of any 14" colour monitor for the Archimedes micro.

Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The Multivideo VIDC Adaptor supplied with the monitor allows high resolution operation in all screen modes. **£325**

• Aries Alphascan 17" Plus £495

Philips Monitors

• **BM7502** 12" Hi-res Green Monitor	£67
• **CM8833** 14" Med. Res Colour Monitor	£172
• Dust Cover for Philips Monitors	£6
• Spare Monitor Leads (various)	£7

STAR BUY
Philips CM8833 Colour Monitor

This attractively finished, etched screen medium res monitor is supplied complete with built-in speaker, volume control and video input. All controls are located on the front panel for ease of use. Ideal for BBC, Archimedes and Amiga.

Only £159

Roland Plotters

• DXY1100	£488	• DXY1200	£620
• DXY1300	£825	• DXY2500	£2345
• Sketchmate A3	£499	• Sketchmate A4	£308
• Roland plotter Pens, Fibre tip			£7.50

Integrex Ink Jet Printers

• Colour Jet 132 Printer	£425
• Integrex Betajet	£185
• Integrex Colourjet Series 2	£POA
• Paper Roll	£6.50
• BBC Screen Dump Software	£10
• Colour Cartridge	£21
• Black Cartridge	£12.40
• 100 A4 OHP transparencies	£55
• 8K Serial Interface Optional	£123
• Colour Jet 2000	£529
• Betajet Ink Jet Printer	£185
• Betajet Cut Sheet Feeder	£43

VIDC Enhancer

This unique VIDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements. There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A Desk Top application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VIDC Card: Its unique design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control **£45**

MultiVideo VIDC Card: As above but for MultiScan monitors only. **£25**

SPECIAL OFFER

• **Desk Jet 500 Mono Printer**	**£264**
• **Desk Jet 500 Colour Printer**	**£339**
• **Desk Jet 550C Colour**	**£442**
• **HP Laserjet IV (600dpi) 8ppm**	**£989**

- Above prices include 3 years extended parts and labour warranty at no extra cost to you.
- At an additional cost of £50, we will convert the above warranty to 3 years on-site warranty.
- Archimedes Printer Driver for DJ 500 Colour Printer £15
  (P.S. DJ 500 mono no driver required)

Panasonic Printers

KX-P1123	£126	KX-P2180C	£146
KX-P1124i	£170	KX-P2123C	£197
KX-P1170	£99	KX-P2180M	£156
KX-P1624	£250	KX-P2123M	£176
KX-P1654	*£332	Colour Kit for	
KX-P1695	£267	P2180M/2123M	£–
KX-P2624	*£268		

* Price includes 12 months On-site warranty

Cut Sheet Feeders

P36 – 1124/24i £79 **P37** – 1123/70/80 £69
P38 – P1624/95; P2624 £129

Buffers

P12 4K Buffer Board for KX-P1081 £55
P14 32K Buffer P1123/24/70/80 P1540/92/95; P1624/54/95 £16

Serial Interfaces

P13 for P1123/24/24i/70/80/1624/54/95/2624 £49

Original Panasonic Ribbons

Guaranteed to last 3 million characters

P110 for KX-P1081, 1592 & 1595 £6
P115 for KX-P1180 £7 **P145** for KX-P1124 £7
P140 for KX-P1540 £8 **P155** for KX-P1624 £8
Colour Ribbons for KX-P1081, 1592 & 1595 Brown, Blue or Red £9 each
P150C Colour for P2123/2180 £15

Citizen Printers

• 120D Plus	£95	• Swift 9	£145
• 224	£174	• Swift 24X	£299
• 240 Colour	£212	• 24X Colour Opt	£32
• PN-48	£199	• PN48 Ribbon	£4

• AH29804 Manual Cut Sheet Feeder for Swift 9/24/124. Holds 50 Sheets £29

+ FREE 2 years Parts and Labour warranty on all Citizen Printers

• Swift 9 Colour Option		£19
• Swift 24 Colour Option		£29
• Swift 24 Ribbons	Black £4	Colour £13
• Swift 24X Ribbons	Black £8	Colour £16
• Citizen/Archimedes Colour Printer Driver		£15

Star Printer Ribbons

LC10; LC10-II; LC15	Black £4;	Colour £6
LC-200; LC24-200	Black £5;	Colour £12
XB24-10; XB24-15	Black £5;	Colour £12
• Dust Covers for Star Printers		£6

Star Printers

LC15	£168	LC200 Colour	£140
LC20	£99	SJ48 Inkjet	£165
LC100 Colour	£136	XB24-200 Colour	*£288
LC24-15	£233	XB24-250 Colour	*£350
LC24-20	£148	XB24 Colour kit	£29
LC24-100 Colour	£162	ZA200 Colour	*£230
LC24-200	£162	ZA250	*£295
LC24-200 Colour	£205		

• Star/Archimedes Colour Printer Driver £15
* Includes 12 months On-site warranty

Cut Sheet Feeder

LC10/200/24-10	£65	LC15/LC24-15	£125
XB24-10	£80	XB24-15	£139
XB24-200	£99	XB24-250	£149

Serial Interfaces

8K Ser LC-200; LC24-200; FR10; FR15; XB24-10; XB24-15 £52

Buffers

32K Ram Card for LC/XB24-10; 15; LC200 £55

Laser Printers

All Laser Printers include 12 months On-site maintenance

Brother HL-4	4ppm	£490
Brother HL4-V	4ppm	£639
Brother HL4-PS Postscript	4ppm	£970
Brother HL-10V	10ppm	£1059
Brother HL10PS	10ppm	£1329
Brother HL10DV	10ppm	£1149
Brother HL10DPS	10ppm	£1449
Brother HL8-V	8ppm	£895
Canon LBP4 LITE	4ppm	£479
Canon LBP4+ 1.5M RAM	4ppm	£632
Canon LBP-8III Plus	8ppm	£945
Epson EPL4300	4ppm	£570
Epson EPL4000	6ppm	£475
Epson EPL7500	6ppm	£1139
Epson EPL8100	10ppm	£939
Fujitsu VM800	8ppm	£699
HP Laserjet IIP+	4ppm	£530
HP Laserjet III	8ppm	£1009
HP Laserjet IIID	8ppm	£1487
HP Laserjet IIIP	4ppm	£685
HP Laserjet IIIsi	16ppm	£2510
HP Laserjet IV (600 dpi)	8ppm	£989
NEC Silentwriter S62P P/script	6ppm	£1059
NEC Silentwriter 266	8ppm	£669
NEC Silentwriter 290P P/script	8ppm	£1369
NEC Silentwriter S102	8ppm	£989
OKI OL400	4ppm	£440
Panasonic KX-P4410	5ppm*	£515
Panasonic KX-P4420	8ppm*	£615
Panasonic KX-P4430 Satin Print*	5ppm*	£586
Panasonic KX-P4451	11ppm*	£1085
Panasonic KX-4455 Postscript	11ppm*	£1359
Star LP-8 III 2	8ppm	£1249
Star LP-8 III	8ppm	£890
Star LP-8 Star(post)script	8ppm	£1130
Star LP-4	4ppm	£565
Star LP-4 Mk 3	4ppm	£589
Star LP-4PS Postscript	4ppm	£769

* Now with 2 years On-site warranty

Laser Toners

Canon 2, 3 & 4	£46	Star LP4/LP8	£56
Epson GQ	£13	KX-P4420/30	£24
EPL 4100	£69	Laserjet HP IIP & IIIP	£42
EPL7100/7500/		Laserjet II/D, III/D	£48
8100	£125	Qume Crystal (3)	£58

Laser RAM Upgrades

IIP; III/P 1Mb	£49	EPL7100 256K	£39
IIP; III/P 2Mb	£80	GQ5000 512K	£42
IIP; III/P 4Mb	£132	KX4420/50 1M	£75
II & IID 1Mb	£60	KX4420/50 2M	£115
II & IID 2Mb	£96	KX4420/50 4M	£195
II & IID 4Mb	£142	Star LP8 1M	£139
Canon LBP4 1M	£105	Star LP8 2M	£275
Canon LBP8 2M	£125		

Laser Drum & Developer

• Epson Drum GQ5000	£93	EPL7100	£129
• Panasonic 4420 Drum	£60	Developer	£59
• Panasonic 4450 Drum	£93	Developer	£80
• Qume Drum	£76	Developer	£56

Jetpage Postscript Cartridge

• HP IIP/III £225 IID & IIID £227

Various Add-Ons

• HP Adobe Postscript	£399
• HP Premier Font Collection	£28
• Laserjet various Font cartridges	from £45
• Canon LBP-4 Lower Cassette Tray	£75

Hewlett-Packard Printers

DeskJet 500	#£264	DJ500 colour	#£349
DJ550 colour	#£442	Paint Jet	+£498
Paint Jet XL	+£1045	PaintJet XL300	+£1779
QuietJet	+£293	QuietJet plus	+£379
Think Jet	+£259		

+ Includes 12 months on-site warranty
Includes 3 years extended parts & labour warranty
- For additional £50, we will convert above warranty to 3 years on-site warranty
- DeskJet 500 Cart. Black £14; Colour £23
- Paintjet Cartridges Black £19; Colour £23
- Desk Jet 500 256K RAM cartridge £69
- HP Epson FX Emulation Cartridge for Desk Jet £59
- DJ 500 High Capacity Black Cartridge £21
- DJ 500 Colour Archi Printer Driver £15

Plug In Font Cartridges for DJ 500
- 22706B – Prestige, Elite, Line Draw fonts £55
- 22706C Letter Gothic & HP Line Draw fonts £56
- 22707P – Proprint Emulation Cartridge £57
- Desk Jet Unlimited (Book No VAT) £19.75

Canon Bubblejet Printers

	Printer	CSF	D'ble Bin	Ink Cart
BJ10EX	£160	£43	–	£16
BJ20	£248		–	£16
BJ300*	£284	£88	£65	£12
BJ330*	£373	£110	£79	£12
BJC800C	£1355	–	–	–

* Includes 12 months On-site warranty
- Spare Battery pack for BJ10E £33
- BJ10EX – Archi Turbo Driver £42

Special Offer:
Canon BJ10EX Printer + CC's Turbo Driver £210

NEC Pinwriter Printers

- P20# £169 • P70 £396
- P30 £237 • P90 £605
- P60 £322
- P60/70 Colour Option Kit £59
- Ribbons Black for P20/30 £6 for P60/70/90 £7
- Ribbons for P60/70/90 Black £9 Colour £13.50

Includes 12 months on-site warranty

Cut Sheet Feeders
P20 £59; P30 £85; P60 £89; P70/90 £80

Epson Printers

DFX5000	£1069	LQ1170	£429
DFX8000	£1920	LQ2550+	£669
FX850	£135	LX400	£90
FX1050	£322	LX850+	£134
LQ100	£144	LX1050	£199
LQ570	£197	SQ870	£409
LQ870	£352	SQ1170	£560
LQ1060 Colour	£588	SQ2550	£669
LQ1070	£308		

- Tractor Feed for LQ100 £29
- Original Ribbon for LQ100 £6

Cut Sheet Feeders for
LQ570, LQ870 £47
LX400/850/LQ200/400/450/500/550 LQ1010/1070/1170 £72
LX1050 £115 FX850/LQ860 £128
FX1050/LQ1060/SQ850 £155
LQ2550 £299 SQ2550 £210

Tractor Feed for
LQ800 **£44**; LQ850/FX850 **£69**; LQ1050/FX1050 **£85**; LQ2500 **£90**; LQ2550 **£90.**

Accessories
- EX800/1000 Colour Option £45
- EX800/1000 Colour Ribbon £14
- LQ2500 Colour Option £65
- Multifont Card for LQ550/850/1050 £95

Epson Printer Interfaces
RS232 £28 RS232 + 2K Buffer £52

Printer Leads

BBC Centronics 4' long	£5
BBC Centronics 6' extra long	£7
Compact's Special Centronics Lead	£7
Nimbus Centronics Lead	£6
IBM/Archimedes Parallel Lead 6'	£5
IBM/Archimedes Parallel Lead 5 metres	£10
IBM/Archimedes Parallel Lead 10 metres	£15
Double Ended 36 way Centronics Lead 4'	£7
Double Ended 36 way Centronics Lead 6'	£9
RS232 Leads (Various)	P.O.A.

Laser Direct

- Special High Res Card 600 DPI for Canon LPB 4 & LPB 8 Laser Printers £315
- LPB 4 Printer plus High Res Card £945
- LPB 8III Printer plus High Res Card £1275
- LPB 4 Optional Paper Tray £79

Fujitsu Printers

B-100	£205	DL1100	£217
B-200	£270	DL1100 Col	£267
DL-900	£181	DL1200	£363

Ribbons
DL900/1100/1200 Mono £5 Col. £11
B-100/200 Ink Cartridge £15

Concept Keyboards

Standard A3 Keyboard with BBC Software	£125
Standard A4 Keyboard with BBC Software	£99
Archi A3 Keyboard	£124
Archi A4 Keyboard	£100

Listing Paper (Perforated)

- 1,000 Sheets 9.5" x 11" Fanfold Paper £7
- 2,000 Sheets 9.5" x 11" Fanfold Paper £11
- 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold £21
- 1,000 Sheets 15" x 11" Fanfold Paper £9
- 2,000 Sheets 15" x 11" Fanfold Paper £16
- 1,000 Sheets true A4 Fanfold Paper 70gms £11
- 2,000 Sheets true A4 Fanfold Paper 70gms £21
- Teleprinter Roll (Econo paper) £4
- Telex Roll 50 metre £3

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).
Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 off, 90 x 36mm (Single Row)	£6.00
1,000 off, 90 x 36mm (Twin Row)	£6.25
1,000 off, 90 x 49mm (Twin Row)	£7.50
1,000 off, 102 x 36mm (Twin Row)	£6.75

Laser Printer Labels on A4 Sheets

3750 off, 70 x 29mm (3 Rows x 10)	£15.50
2400 off, 70 x 37mm (3 Rows x 8)	£15.25
2625 off, 70 x 42mm (3 Rows x 7)	£15.00

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
BBC B/BBC Master	–	£4.00
Archimedes Micro pair	–	£9.00
Citizen 120D	£3.25	£5.00
DMP2000/4000	£3.75	£4.95
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	–
FX/MX/RX100/1000	£3.95	–
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£3.25	£6.00
LQ1050/LQ2500	£12.00	–
LX80/86	£2.75	£4.50
LX400/800/850	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00
Panasonic KX1080/81	£6.00	£5.00
Panasonic KX-P1124	£7.00	£5.00
Star LC24-10	£2.95	£6.00

Professional Printer Stand



The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £24 (carr. £3)
132 Column version £29(carr. £4)

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Type

Connects	Serial	Parallel
2 to 1	£12	£13
3 to 1	£16	£18
4 to 1	£23	£24

Professional Type

Connects	Serial	Parallel
2 to 1	£17	£18
3 to 1	£22	£25
5 to 1	£34	£38

Cables extra at £6 each

Cross Over Manual Switch

2 In/2 Out Parallel	£29
2 In/2 Out Serial	£28
3 In/2 Out Serial	£36

Auto Printer Sharer

Connects	Serial	Parallel
2 to 1	£40	£45
4 to 1	£62	£49
8 to 1	–	£89

256k Multi Spooler

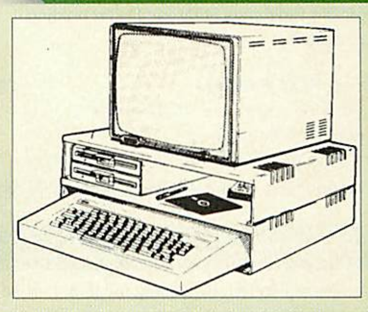
These Auto Parallel Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

- 2 In/2 out £135 • 4 In/2 out £169
- 8 In/1 out £199

Compact Converter Units

Serial to Parallel £36 Parallel to Serial £37

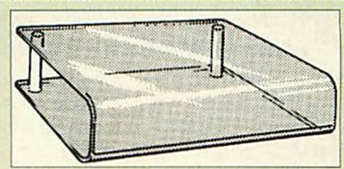
Plinths for the BBC B, BBC Master & A3000



Protect your computer from the heat of your VDU. Our micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and VDU, whilst the double height version provides enough room for our stacked disc drive and other peripherals like, Eprom programmer, music unit or simply discs & stationery. The computer slides neatly in the lower section allowing easy access to remove the lid. Colour: Matching BBC Beige.

- Single BBC Plinth 420 x 310 x 105mm £13
- Double BBC Plinth 420 x 310 x 210mm £24
- Single Master Plinth 490 x 310 x 105mm £14
- Double Master Plinth 490 x 310 x 210mm £26
- A3000 Single Plinth (very sturdy & precision made), has a slot on the left for the switch & cut out on the right for 3.5" Disc Drive £15

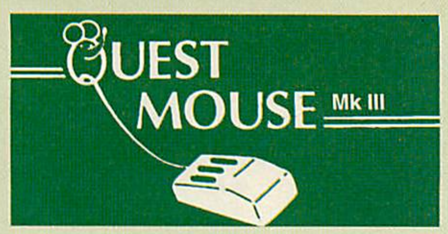
Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version £16 (carr £3)
136 Column version £20 (carr £4)

Continued→ → → → → → → → → →



- Quest Mouse III & Quest Paint £49
- Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont £69
- Quest Mouse III only £25
- Quest Paint Software only £28
- Quest Font Disc (22 Text Fonts) £15
- Quest Mouse Mat (Red or Blue or Green please specify) £3
- Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer £18

  (P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

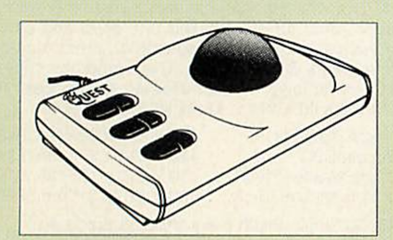


Quest combined with ConQuest and Acornsoft GXR ROM make up THE MOST POWERFUL drawing packages available for the BBC range. Quest Paint is able to take advantage of almost any additions to your machine, such as Shadow or Sideways RAM. ConQuest takes this principal even further, by utilising the otherwise normally incompatible Sideways RAM facility by holding pictures in them.

ConQuest ROM Package £28
(Price includes software in ROM and a comprehensive Manual).
(Not Compatible with BBC Compact)
(P.S. Conquest is a Quest Paint extension ROM).

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



QT-10 BBC/Master Version **£25**
QT-20 Archimedes Version **£26**

Mouse Cleaning Kit

To obtain trouble free operation and prolong the life of your mouse, the high tech rodent requires regular cleaning. Our deluxe mouse cleaning kit is ideal for the purpose £3



**CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383**

Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. £15

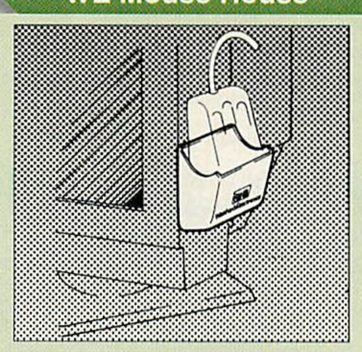
Mk III AMX MOUSE

- **AMX Mouse plus Super Art £49**

(Please specify for BBC, Master or Compact)

- AMX MOUSE ONLY £25
- AMX SUPERART Package £26
- AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse £25
- PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker £13
- AMX DESIGN (ROM) £29
- AMX EXTRA EXTRA £16
- MOUSE MAT £3

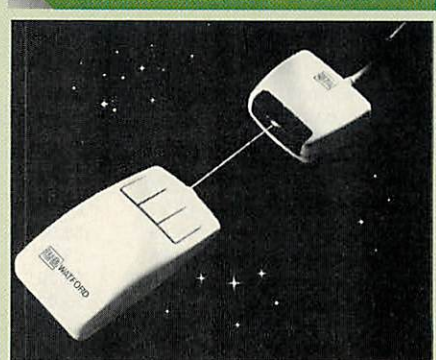
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive etc.

Only £3

Archi Cordless Mouse



Features
- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 seconds inactive
- Auto Power Shut-Down after 20 seconds inactive

Price £39

BEEB VIDEO DIGITISER



"Test Bureau Approved for Use in Education"

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro. This uses the full graphics capacity of the BBC micro in modes 0, 1 or 2. The video source may be a camera, video recorder or television, and is connected via the video output socket. The software supplied includes a sophisticated, fast screen dump routine.
Images produced can be compressed, stored to disc, printed on an Epson compatible printer, directly used to generate graphics, analysed for scientific and educational use or converted to other formats e.g. Slow Scan TV or receiving a picture from a remote camera using a modem. The output from the digitiser exactly matches the graphics capability in each mode, with up to 8 levels of grey in mode 2. The unit connects into the User Port and automatically scans a complete picture in 1.6 seconds.

£75

(BBC B+ and Master compatible, except Master with Econet)

(Price includes) Digitiser Unit, Software in ROM & a Comprehensive Manual)

Beeb Hand Scanner

Hand-held Scanner for the BBC Micro



Watford Beeb HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs!

The HandScan plugs directly into the 1MHz bus on the BBC while a comprehensive set of utilities provided by the sophisticated ROM firmware. The scanner has a resolution of either 100 DPI or 200 DPI when accuracy is essential. Pictures as wide as 4" may be scanned in mode 0 and various types of dithering may be selected to simulate the grey levels of a scanned picture.

All necessary software has been included in the firmware to allow the scanner to read images directly into our Wapping Editor with little more than the click of the mouse. The digitised picture may then be incorporated into your magazine, newsletter, report or any other document.

Beeb HandScan & Firmware £99



Winner of the BBC Acorn User 1990 Award for the Best DTP/Word Processor

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Included with the system is a utility disc containing several high quality fonts, various utilities and a ROM image of a Support ROM. A comprehensive 100 page manual completes the package. The Support ROM contains routines to allow an area to be rotated to any angle or distorted to any four-sided shape. Also included are facilities to draw ellipses at any angle and sectors, segments and arcs (in Master or BBC B with Acorn GXR). Another of the features of the Support ROM is a 'Turbo DFS' which gives DFS access times comparable with those of ADFS.

Page Layout Section

The Wapping Editor may be used to create pages of any size from an A6 to a full A3 page. If none of the eight default page types suit your purpose, the stand-alone page creation program may be used to create pages to your own requirements. By using proportionally spaced fonts and genuine microspacing it is possible to print over 150 characters across an A4 page. A unique feature of the Wapping Editor is the 'A5 x 2' page size allowing two A5 pages to be printed side by side onto a single A4 sheet.

The graphics module incorporates the facilities like: pencil, brush, airbrush, polygon, circle, eclipse, fill, cut & paste, etc.

Text may be typeset, either justified or unjustified, in any font anywhere on the page. Simply select which font and text document you wish to use, and pull out a rectangle on the page where you want the text to be – it's as simple as that! Multiple columns may be printed just as easily and a special 'expand' feature may be used to expand the microspacing so that the document exactly fits the space defined.

Word-Processor

The integral word processor is the ideal tool for producing your text documents, although text can of course be read in from any of the other popular word processors such as View, Wordwise etc.

The Font Editor

The font editor module will allow you to design your own typefaces or to modify the ones provided on the utility disc. This sophisticated editor has numerous functions designed to take the tedium and frustration out of producing good looking, well balanced fonts. Each character may be individually proportionally spaced and characters of any size up to 16 x 16 pixels may be defined.
Pictures may also be 'grabbed' from a video source by using the Watford BEEB Video Digitiser.

Wapping Editor Software Pack	**£49**
Wapping Editor plus Mouse	**£69**

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc.
Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out.

Music writing symbols in the form of pattern and brush for quick production of manuscripts are included together with staves.

There are two prepared hi-res pages laid out for printing labels, both single and double width. Ready made label designs are included but these can be easily replaced with your own designs.

A Mode 0 screen dump routine is also included. To pack such a large amount of data onto the discs the screens have been compressed and routines to compress and expand Mode 0 screens are included on both discs. Using the packing routine you can archive large numbers of screens onto a single disc.

£15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.
Also included are three Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.
Supplied complete with instructions.

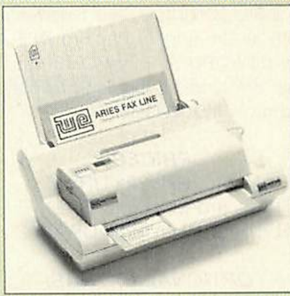
£12

Wapping Font Disc 2

This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only).

£13

Archi A4 Scanner

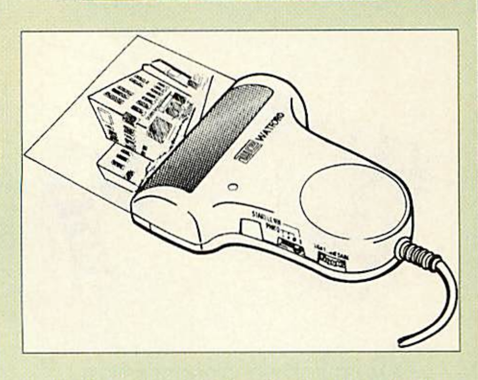


This most advanced Archi A4 image scanner is supplied complete with ROM based podule software. Features provided include facilities for zooming in on an image and inverting the image in X and Y directions, saving and printing of the sprite created. Interactive help is supplied using the !HELP application on the Acorn applications discs.
The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.
Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.
All these features and facilities combine to make the Archi Page Scanner the fast and convenient way in which to add that extra impact, interest and clarity to documents, reports, instruction sheets, manuals, news letters, etc., from your Archimedes DTP package.

New Low Prices:

Archi A4 Scanner	£269
Sheet Feeder for above	£75
Scanner + Sheet Feeder	£359

Archi Mk II Hand Scanner



Watford's Mk II hand scanner has a maximum resolution of 400 dpi. The scanning width is 4". The sophisticated software is supplied in a 64K ROM, located on a standard single width expansion podule. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. Other facilities include Cropping and scaling to any size including stretching and squashing in X and Y directions separately. Colour tinting. X and Y flip. Edge detection which turns solid objects into outlines.
Images can be printed on any printer supported by RISC OS.
On-screen help is provided via the RiscOS interactive help facility. (Please write in for full technical details).

AHS-4 Archi 300/400 Version	**£109**
AHS-3 Archi A3000 Version	**£119**

Z88 Portable Micro



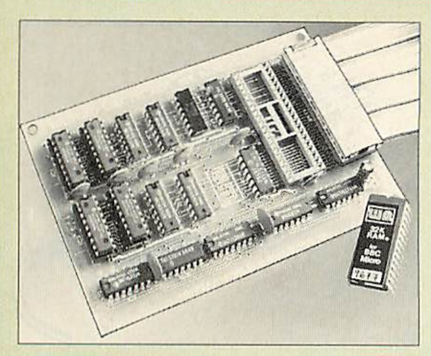
• Z88 Portable Micro	£169
• 32K RAM Pack or 32K EPROM Pack	£16
• 128K RAM Pack or 128K EPROM Pack	£32
• 512K RAM Pack	£86
• 256K Eprom Pack	£55
• Z88 Eprom Eraser Unit	£38
• Z88 Carrying Case	£8
• AA Nicad Rechargeable Battery	£1.50
• Battery Charger Compact & Fast	£6
• Z88 Serial Printer Cable	£8
• Z88 Parallel Printer Cable	£18
• Z88 to Archi Link	£15
• Z88 to BBC Link £8	• Z BASE £56
• Z88 to PC Link II £27	• Z88 to Macintosh £32
• Z88 Mains Adaptor £9	• Z88 Modem £114



CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

Continued→ → → → → → → → →

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

Simply plug the ribbon cable plug into the 6502 socket and gain a massive 32K of extra RAM.

- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28K bytes free – 5 times as much as normal.
- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.
- Use the full 32k or the bottom 12K of the expansion RAM as a printer Buffer. (P.S. Only 12K printer buffer can be used with Wordwise & WW+, due to the way they are written).
- Unique facility to turn ROMs off and on again.

Only £49

Commander Joystick



Features:

- Direct connection to BBC Analogue input port – no interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

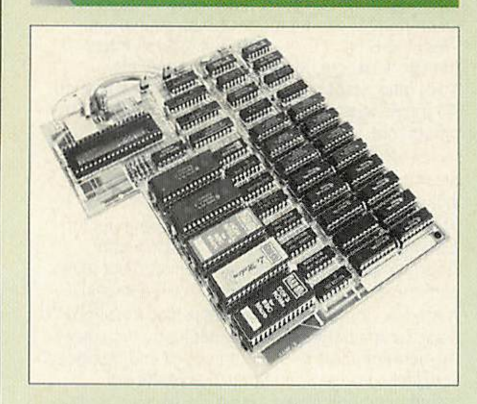
Price: £15

(PC version of above joystick available at **£16**)

Voltmace Joysticks

Delta 3B Single Joystick	£10
Delta 3B Twin Joysticks	£15
Delta 3C Joystick for Compact	£10
Delta 14B Single Joystick	£11
Delta 14B/1 Adaptor Module	£12
Transfer Software Disc-Tape	£7
Delta-Cat A mouse eliminator Joystick for the Archimedes	£24
Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128	£25

ROM/RAM Card



- NO SOLDERING required to fit the board.
- Fully buffered for peace of mind.
- Compatible with BBC micros (not BBC+ or Master).
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).
- Option for 16k of battery backed CMOS RAM (CMOS RAM needs one ROM socket).
- Software Write protect for ALL RAM.
- Read protect for CMOS RAM.
- Separate RAM write register (&FF30 to &FF3F).
- Automatic write to currently selected RAM socket for convenience.
- FREE utilities disc packed with software.
- Large printer buffer.
- UNIQUE fully implemented RAM FILING SYSTEM (similar to the popular Watford DFS).
- ROM to RAM load and save facilities.

The SFS (Silicon Filing System) can utilise up to the full 128k of RAM (with the SFS in any paged RAM) as a SILICON DISC. This behaves as a disc drive, with all the normal Watford DFS features (including OSWORD &7F for ROMSPELL, etc.) to provide an environment that looks like a disc but loads and saves MUCH faster.

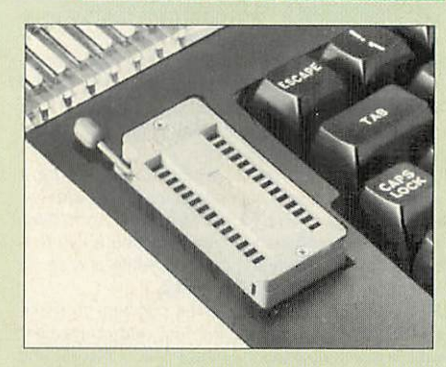
PRICES:

• ROM/RAM card with 32k DRAM	£39
• ROM/RAM card with 64k DRAM	£52
• ROM/RAM card with 128k DRAM	£83

OPTIONAL EXTRAS:

• 16k plug-in Static RAM kit	£8
• 16k DRAM for Upgrade	£13
• Battery backup	£3
• Read and Write protect switches	£2 each
Complete ROM-RAM card with all options fitted	£109

Sideways ROM ZIF Socket System



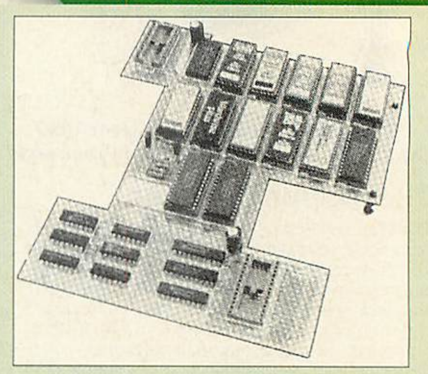
Allows you to change your ROMs quickly and efficiently, without having to open the lid. The ZIF socket is located into the ROM Cartridge's position. It is very simple to install. No soldering required. Also included in the price is a plastic see through storage case with antistatic lining, which allows you to store 12 ROMs. **£18**

ROM Cartridges for the BBC Master

Will accept the larger Piggy Back ROMs like Interword, Quest, etc.

• Twin **£8;** • Quad **£13**

Solderless Sideways ROM Socket Board



- Increases your BBC Micro's ROM capacity from 4 to 16.
- **No soldering required.**
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish" allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £32

Battery Backup fitted **£35**

Battery Backup only **£3**

16K Sideways RAM **£8**

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

Connecting Leads

(All ready made and tested)

CASSETTE LEADS 7 pin DIN Plug	
to 3 pin DIN Plug + 1 Jack Plug	£2.50
to 7 pin DIN Plug	£3.00
to 3 Jack Plugs	£2.50
6 pin DIN to 6 pin DIN Plug (RGB)	£3.00

Disc Drive Power Leads

Supply from BBC power supply to standard Disc Drive Connection: Single **£3.00;** Dual **£3.75**

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single **£4** Twin **£6**

Miscellaneous Connectors

	Plugs	Sockets
RGB (6 PIN DIN)	50p	75p
RS423 (5 pin Domino)	70p	80p
Cassette (7 pin DIN)	40p	95p
ECONET (5 pin DIN)	35p	50p
Paddles (15 pin 'D')	150p	250p
Disc Drive Plug 4 way	100p	–
6 way Power Connector	120p	150p

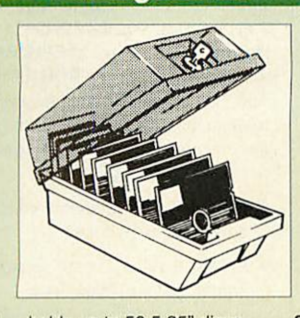
Watford DATA DUCK

Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below).

£14

Watford POWER DUCK **£8**

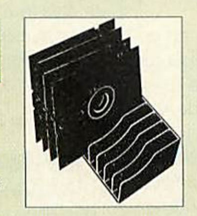
Antistatic Lockable Disc Storage Units



- **M35** – holds up to 50 5.25" discs £4.95
- **M85** – holds up to 95 5.25" discs £6.95
- **M25*** – holds up to 25 3.5" discs £4.95
- **M50** – holds 50 3.5" discs £6.50
- **M100** – holds 100 3.5" discs £6.99
- **M10** – holds 8 of No. 10 Data Cartridges £15

* Not lockable

Disc Plonker Rack



When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

Protection at Only: £2



3M – Diskettes

Lifetime warranty on 3M Discs

- *10 x 5.25" S/S D/D 40T (744)* £5
- *10 x 5.25" D/S D/D 40T (745)* £5
- *10 x 5.25" S/S D/D 80 Track (746)* £7
- *10 x 5.25" D/S D/D 80 Track (747)* £7
- *10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT* £8
- *10 x 3.5" S/S D/D 40/80 Track* £6
- *10 x 3.5" D/S D/D 40/80 Track* £6
- *10 x 3.5" Double Sided High Density* £11



Top Quality Diskettes

Watford's life time guaranteed disc are supplied complete with self stick labels & plastic library case.

- *10 x M3 3.5" D/S D/D 80 Track* £6
- *10 x M9 3.5" D/S High Density* £10
- *10 x M4 5.25" S/S D/D 40 Track* £5
- *10 x M5 5.25" D/S D/D 40 Track* £5
- *10 x M7 5.25" D/S D/D 80 Track* £6
- *10 x M8 5.25" D/S H/D Hi-Density* £9
- *M2 3" Double Sided* £2.50 each

Special Bulk Offer Discs

(Lifetime warranty on Discs)

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
Without Sleeves 5.25"	£25	£30	£35
With Sleeves 5.25"	£28	£33	£38
3.5" D/S D/D	£21 for 50		£39 for 100

3.5" Disc Drive



These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
	Disc Drive without PSU	
CLS35:	Single Disc Drive, 400K	£59
CLD35:	Twin Disc Drives, 800K	£109
	Disc Drive with PSU	
CS35:	Single Disc Drive, 400K	£82
CD35:	Twin Disc Drives, 800K	£126

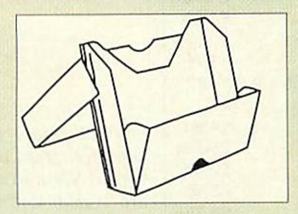
(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drives in Monitor Stand



- **CDPM 800S** – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use. **£165**
- **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5". **£154**

Plastic Library Cases



- **DLC1** – Holds 5 x 3.5" Discs. £1.50
- **DLC2** – Holds 10 x 3.5" Discs. £1.90
- **DLC3** – Holds 5 x 5.25" Discs. £1.60
- **DLC4** – Holds 10 x 5.25" Discs. £2.00

Disc Albums

Attractively finished in leather-look PVC Vinyl

- **DW1** – Holds 6 x 3.5" Discs £2.50
- **DW2** – Holds 6 x 5.25" Discs £3.00
- **DW3** – Holds 20 x 5.25" Discs £3.50
- **DW4** – Holds 40 x 3.5" Discs or 5.25" Discs £4.50

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. it is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Acorn & Watford DFSs

- Watford sophisticated DFS ROM £16.00
- Watford DFS Kit complete £49.00
- DFS Manual (comprehensive) £6.95
- Acorn DNFS ROM £17.00
- Acorn ADFS ROM only £25.00
- Acorn 1772 DFS ROM Kit £49.00
- Acorn DFS Kit complete £48

Watford's MkII 1772

Single/Double Density DFS

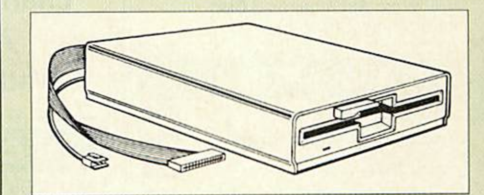
Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1772 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1772 DFS, plus many more added features.

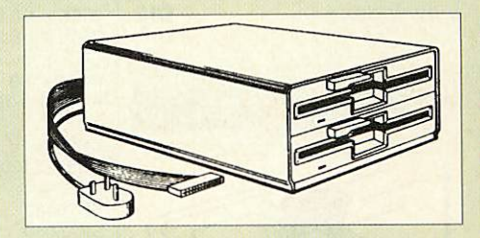
- Complete Kit Special Price £44
- DDFS Manual (No VAT) £6.95
- We will exchange your existing DFS Kit for our sophisticated DDFS for only £26

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted. Follow the trend with a Watford plinth. *(Turn to the 6th page of our advert for the Plinths).*
P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"





Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
CLS400S:	Single, 40/80 track 400K Double sided Drive	£70
CLD800S:	Twin, 40/80 track, 800K Double sided Drives	£138
	Disc Drive with PSU	
CS400S:	Single, 40/80 track, 400K Double sided Drive	£80
CD800S:	Twin, 40/80 track, 800K Double sided Drives	£149

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Continued→ → → → → → → → → →

Computer Concept's ROMS

Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42

Wordwise plus

£40
We are giving away absolutely **FREE,** the superb Word-Aid ROM worth £24, with every WORDWISE PLUS package bought from us.

Word-Aid

This advance utilities ROM extends the power of your Wordwise plus ROM.

- Alphabetical sorting of names and addresses.
- Text transfer options.
- Chapter marker.
- Epson printer codes function key option.
- Search and display in preview mode.
- Embedded command removal.
- Print Multiple copies of a document.
- Multiple file options for print and preview.
- Address finder.
- Label printer.
- Mail-merger.
- Number/delete/renumber.
- Clear test-segment area.
- BBC B, B+ and Master compatible.

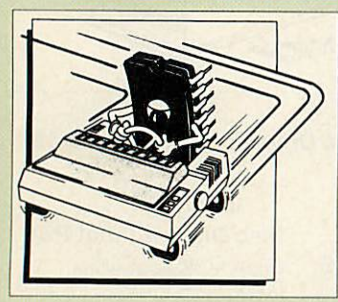
Only £24

(N.B. Word Aid requires a Disc interface in your Micro)

Acorn ROMS

View 3.0 ROM	£45
Viewsheet (Acornsoft)	£36
Viewstore	£36
Viewspell – 80T disc	£25
View-Index	£12

View Printer Driver ROM



View is a powerful word processor, but it seriously lacks in terms of printer driver support. With the View Printer Driver ROM, the View users will find themselves in the realms of advanced word processing.

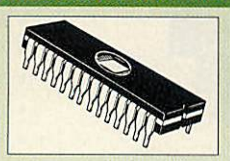
Price: Only £29

Mini Office 2 – Disc

for BBC B & B+	£12
for BBC Master	£14
for BBC Compact	£16

(When ordering please specify for which Micro & 40 or 80T Disc)

Assorted ROMS



ACORN ADFS	£25
ACORN BASIC 2 plus User Guide	£22
ACORN DNFS	£17
Acorn OS B+	£25
Acorn OS 1.2	£14
Beebmon	£22
Dump Out 3	£25
Graphics Extension Rom	
GXR-B	£21
GXR-B+	£22
Logotron LOGO	£43
MASTER OS ROM	£38
Master ULA (47)	£15
Master ULA (60)	£10
Numerator – Archi	£69
Numerator – BBC	£39
Pendown ROM	£32
Rom Manager	£20
SERIAL ULA	£13
TED	£35
Termulator Master	£32
Video ULA	£14
1Mb OS ROM	£39

Watford Electronics' New High Tech Computer Boutique is now open in Luton. Don't miss your chance to visit the Acorn and Watford Villages.

CHIP SHOP

1 MB-10 DIL D-RAM	£4.50
1 MB ZIF D-RAM	£4.00
256K x 4-8 DIP	£4.75
256K x 4-8 ZIF	£4.00

SIMs and SIPs

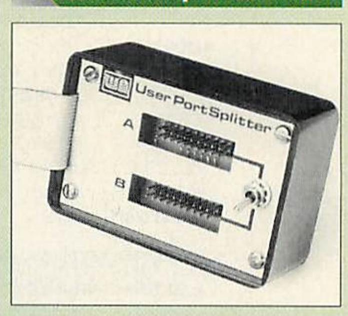
- 256 x 9-8 — £11
- 1Mb x 9-10 — **£22** • 1Mb x 9-8 — **£27**

DS3691	£4.50
DS88LS120	£5.25
LM324	£0.45
SN76489	£5.50
SAA5050	£8.75
UPD7002	£6.00
2764-250nS	£3.00
27128A-250n (12V5)	£2.50
27128-250nS (21V)	£4.00
27256-2	£3.00
27512-2	£4.50
27C101G (1 Meg)	£7.00

• 4013	75p	• 68B50	£2.95
• 4020	£1.00	• 68B54	£7.50
• 4164-10	£1.55	• 7438	50p
• 4464-10	£3.50	• 74LS00	50p
• 4816 RAM	£2.00	• 74LS04	50p
• 41256-8	£2.00	• 74LS10	50p
• 41256-10	£1.50	• 74LS123	£1.00
• 6264LP-8K	£4.00	• 74LS163	£1.00
• 6502A	£5.00	• 74LS244	£1.00
• 65C02 3M	£9.75	• 74LS245	£1.00
• 65C12	£9.00	• 74ALS245	£2.75
• 6512A	£10.00	• 74LS373	£1.00
• 6522	£4.00	• 74LS393	£1.00
• 6522A	£5.00	• 75453	£1.00
• 62256ALS	£10	• 75159	£3.00
• 62256P-12	£8.50	• 8271	£39
• 6818	£4.00	• 9637	£2.00
• 6845SP	£6.00	• ICL7673PA	£3.00

Acorn Speech Synthesizer package complete, for the BBC B Microcomputer
Special Offer £14

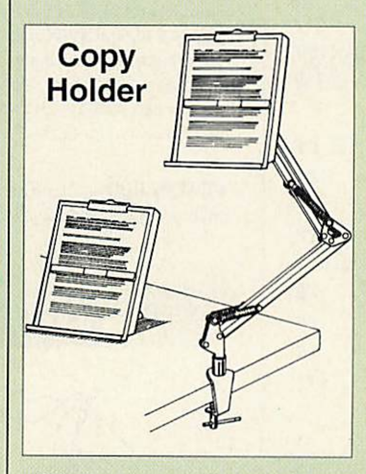
User Port Splitter Unit



Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows two units to be connected to the User Port simultaneously, and select between them simply by toggling a switch. This device is particularly useful for those people using Quest Mouse and the Watford Video Digitiser or any similar combination

Excellent Value at **£22**

Copy Holder



Whether you want to type in your latest program or the draft of a new trilogy, Watford's manuscript holders are superb for holding your paper at the ideal height and angle to allow you to read and type in ease and comfort.

Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly by means of a plastic retaining ruler and a clip grip.

Desk Top **£8**
Angle poise **£12**



Copy holders as above but with a battery operated, remote controlled cursor/ruler. (By hand or foot pedal.) (Batteries 2 x AA not included.)

Desk Top **£15**
Angle poise **£20**



Credit Card 24 Hour Ansaphone Hot Lines 0582 48 77 77 or 0923 250234/233383

TEX EPROM ERASERS

EPROMs need careful treatment if they are to survive their expected *lifetime*. Over erasure of EPROMs very rapidly turns them into ROMs!
The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast.

- **ERASER EB** – Standard version erases up to 16 chips. £34
- **ERASER GT** – Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. £36
- Spare UV tubes. £12

ROM Extraction Tool

This extremely useful tool allows you trouble free chip insertion and removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip. **£2**

Metal Chip Extractor **£3**

Servisol Foam Cleaner

This king size multipurpose foam cleaner spray is ideal for cleaning Keyboard, Monitor, Disc Drive & Computer furniture surfaces. **£2.50**

Antistatic Aerosol Spray

Ideal for cleaning and preventing static build-up on TV/Monitor Screens. **£2.50**

Aerosol Dust Spray

Ideal for removing dust & dirt from Keyboard & similar inaccessible spaces. £3

OFFICE MASTER

• CASHBOOK • FINAL ACCOUNTS
• MAILIST • EASILEDGER –
• INVOICES & STATEMENT

All this for only **£21** (Disc)

OFFICE MATE

• DATABASE • SPREADSHEET
• BEEBPLOT

Only £10 (Disc)

Spares for BBC Micro

UHF Modulator	£4
Speaker £3; Speaker Grill	£1
Keyswitches	£1
16MHz Crystal	£2
17.734 MHz Crystal	£2
32.768MHz Crystal	£2
Replacement 17 way Flexible Keyboard Connector	£4
BBC Master Power Supply	£59
BBC Master Keyboard	£62
BBC Master Casing	£49
Refurbished BBC B Spares	
BBC B Casing	£19
Clear Perspex Keystrip Holder	£3
BBC B Keyboard	£35
BBC B Power Supply	£42

BOOKS (No VAT on Books)

15 Hr Wordprocessing BBC/View	£6.95
15 Hr Wordprocessing BBC/WW & WW+	£6.95
30 Hour BASIC (BBC Micro)	£12.95
1st Word Plus – Mastering	£13.95
1st Word Plus Rel. 2 Manual	£10.00
A3000 Technical Reference Manual	£29.00
Acorn DTP A Guide to	£17.00
Advanced User Guide for BBC	**£10.95**
Archimedes 1st Step – Beginners Guide	£9.95
Archimedes Assembly Language	£14.95
Archimedes Basic V Guide	£9.95
Archimedes BBC Basic Guide	£20
Archimedes DTP Manual	£10.00
Archimedes Operating System	£14.95
Archimedes Risc-Os Programmers Reference Manual	£79.00
Assembly Language Quick Ref.	£21.95
BASIC 2 – User Guide	£2
BBC Micro – Within the	£11.95
BBC B Micro User Guide	£15
BCPL User Guide	£9
Budget DTP on the Archimedes	£12.95
C Big Red Book of	£8.95
C – A Dabhand Guide (Archi)	£14.95
C – A Dabhand Guide to	£14.95
C Programming Lang. 2nd Edition	£24.95
COMAL – Introduction to	£9.50
Deutsch Direkt! (Book only)	£5.95
DISC FILING SYSTEM (DFS) Operating Manual for BBC	£6.95
FORTH on the BBC Micro	£9.95
ISO-PASCAL Reference Manual	£9.95
Master 512 Guide – Dabs Press	£9.95
Master Operating System	£12.95
Master Reference Manual Part 1	£14
Master Reference Manual Part 2	£14
Master Reference Manual – Advanced	£14
MINI OFFICE II – A Dabhand Guide	£9.95
Mouse User Guide to BBC Micro – the Complete	£5.95
Example Programs on Disc for above	£4.95
PASCAL Programming	£10.95
Risc OS Style Guide	£9.95
RISC Technical Manual 260 pg	£14.95
Understanding Interword – A Beginners Guide	£4.95
View 3.0 User Guide	£10
View Guide (View 2.1)	£5.00
View, Viewsheet & Viewstore – Mastering	£12.95
VIEW Dabhand Guide	£12.95
Viewsheet User Guide	£10
Viewstore User Guide	£10
Z88 – A Dabhand Guide	£14.95
Z88 Computing	£9.95
Z88 Magic	£14.95

BOOKS for IBM PC & Compatibles

386/486 PC Power User Guide	£19.95
8086/8088 Ass. Language Quick Ref	£8.45
8086/8088 Programming the	£17.95
Accountancy software in Business – Using	£14.95
Agenda – Using	£21.95
Aldus PageMaker – Using	£21.45
Amstrad 9512 – Using the	£10.95
Amstrad Basic 2 User Guide	£9.95
Assembly Language 3e – Using	£27.45
Autocad 4th Ed – Mastering	£31.50
AutoCAD – Inside 10 & 11 Spec Ed	£32.45
AutoCAD – Mastering Rel. II 4e	£31.50
Autocad – Mastering Through Rel. 10	£28.95
BASIC – Do it yourself Visual	£18.50
Build Your own 386/386SX & Save	£15.50
Build Your own 80486 IBM Computer	£12.95
C Programming Language 2nd Ed	£26.95
C – Waite Group Turbo C Bible	£27.95
C++ Borland C++ 3 Handbook 2e	£24.95
Clipper 5 Developers Guide	£24.95
Clipper 5.01 3e – Using	£27.45
Computer Users Dictionary	£9.95
Corel Draw 2.1 3e – Inside + Disc	£32.45
Corel Draw 2 3e – Mastering	£26.95
Corel Draw Quick Ref Thro V1.2	£7.95
Corel Draw 2.0 Made Easy	£19.95
Corel Draw v2 Quick Ref	£28.90
Corel Draw Quick Ref v1.2	£8.45
Corel Draw 2 Visual Quick Start incl. Disc	£21.35
dBase 3/4 Complete Ref	£27.45
dBase III Plus – Complete Reference	£19.95
dBase III Plus Handbook 2nd Edition	£22.95
dBase Instant Reference (III & III+)	£10.95
Desk Jet Unlimited	£19.95
DOS Complete Reference 3e	£23.95
DOS for Dummies Through v5.0	£15.45
DOS – Easy (to ver 5)	£18.45
DOS Instant Ref.	£9.75
DOS Instant Reference (up to 3.3)	£6.95
DOS – Programmers Ref. Manual 2nd Ed	£27.45
DR DOS 6 Quick Reference	£8.95
DR DOS 6.0 Stepping up to	£13.95
DTP Looking Good in Print 2e	£21.95
EGA & VGA Cards Prog. Guide to	£27.95
Excel 4 Windows – A Quick Course	£11.95
Excel 4 for Windows Quickstart	£20.45
Excel 4.0 Windows Made Easy 3e	£16.50
Excel 4 for Windows Learn Fast	£16.50
Excel 4 for Windows 2e – Using	£27.45
Fax – Management with	£7.95
FAX – Managing with	£12.95
Foxpro 2 Made Easy Revised Ed	£20.95
Foxpro 2 – Using	£27.45
Foxpro 2 – Mastering 2ed	£26.95
Framework III – Mastering	£24.50
GW Basic Users Guide & Ref	£17.95
Hard Disc Instant Ref	£10.95
Hard Disc management – Quick Reference Guide to	£4.95
Hard Disc – Using Your	£27.45
IBM PC & PS/2 – Inside the 3rd Ed	£21.70
IBM PCs 386 486 Power User Guide	£17.95
IBM PC Crash Course & Survival 3e	£17.95
LAN–Understanding Local Area Networks	£23.50
Locoscript PC v1.5 – Using	£14.95
Lotus 1-2-3 for Windows	£27.45
Lotus 1-2-3 Rel. 2.4 Special Ed – Using	£27.45
Microsoft GW BASIC	£17.95
MS-DOS 5 – 10 Minute Guide to	£9.95
MS-DOS Batch Files Quick Ref	£5.95
MS-DOS First Book	£15.50
MS DOS for Beginners	£17.45
MS-DOS Quick Ref Guide 5	£8.95
MS-DOS – Running 4th edition	£19.95
MS-DOS – Supercharging 2nd Edition	£17.95
MS-DOS Users Guide 3rd Edition	£27.95
MS-DOS 5 – Quick Start	£18.45
MS-DOS 5 User Hand Book	£19.95
MS-GW BASIC User Guide & Ref	£17.95
MS Visual BASIC Workshop incl. Disc	£28.30
Netware Understand Local Area	£24.50
Netware Users Guide 2.2 & 3.11	£22.95
Novell Netware 386 Comp Ref	£29.95
Novell Netware 2e – Using	£27.45
Novell Network – Mastering	£27.95
Novell Network – Using	£27.45
Pagemaker 4 IBM – Use incl. Disc	£19.95
Pagemaker 4 for Windows – Using	£27.45
PageMaker on IBM PC – Using	£22.95
Pagemaker – Using	£22.95
PCs & Compatible Computers for Beginners	£17.95
PC Crash Course 2.0 2nd Edition	£19.95
PC Configuration Handbook 2e	£26.99
PC – Fix your own	£22.50
PC – Upgrade & Maintain – Complete	£25.50
PCs – Upgrading & Repairing 2e	£32.45
Programming Guide to EGA & VGA Cards	£25.95
Quattro Pro 4.0 Made Easy	£16.50
Quattro Pro 4 Special Ed – Using	£25.95
Smart – Using	£21.45
Smartware II – Mastering	£22.95
Smartware II – Using	£27.45
Supercalc 5 – Mastering	£24.50
Supercalc 5 2ed – Using	£27.45
Timeworks Publ. 2 – Practical Guide	£16.95
Timeworks Publisher Comp. v2.0	£12.95
Turbo C Bible	£27.95
Turbo C++	£22.95
Turbo Pascal 5 – Using	£22.95
Turbo Pascal Using	£27.45
Unix – Using	£27.45
Upgrading & Repairing PC's	£27.45
Ventura Publisher – Using	£22.95
Ventura Tips & Tricks 3e	£21.95
Ventura – 3rd Edition	£24.95
Windows 3.1 10 Minutes Guide to	£9.95
Windows 3.1 Program Ref Vol 4	£19.95
Windows 3.1 A Quick Course in	£11.95
Windows 3.1 Mastering 2e	£25.50
Windows 3.0 3.1 Using Special Ed	£25.95
Windows 3.1 Complete Ref 2e	£23.95
Windows 3.1 Program Ref Vol 1	£26.95
Windows 3.1 Program Ref Vol 2	£35.95
Windows 3.1 Prog Ref Vol 3	£26.95
Windows 3.1 Quick Reference	£8.95
Windows 3.1 Secrets 2e + Disc	£36.95
Window Programming 2nd Ed	£27.95
Word for Windows made easy	£15.95
WORD for Windows – Using	£22.95
Wordperfect – Quick Reference V5	£8.95
Wordperfect 5.1 – ABC's of	£18.95
Wordperfect 5.1 – 1st Book of	£15.95
Wordperfect 5.1 – Mastering	£24.95
Wordperfect 5.1 Quick Course	£11.95
Wordperfect 5.1 Quick Start	£20.45
Wordperfect 5.1 – Using Special Ed	£25.95
Wordperfect for Beginners	£17.45
Wordstar & CPM Made Easy	£15.75
Wordstar 6.0 Made Easy	£15.95

WORD FOR WINDOW

10 Minute Guide Word 2 Windows	£9.50
DTP with Word 2 for Window	£20.45
MS WORD 2 Windows Made Easy	£16.95
Master MS WORD 2 for Windows 2e	£24.50
Quick Course Word 2 Windows	£10.95
Running WORD 2 for Windows	£29.95
Using WORD 2 for Windows 2e	£25.95

Carriage on Books vary between £2 to £4.00, depending on their weight

ACORN to PC

Stop the Confusion!

Do you have to use both Acorn computers and PC's? Would you like to use your Archimedes or A3000 in PC-emulation mode but are unsure of the new commands?

Although Acorn machines (such as the BBC B, the Master, the Archimedes) are mainly used in education, most commercial computers use other operating systems, particularly MS-DOS. As a result school computer users are at a disadvantage when moving into 'business' computing. PCs and other commercial computers use MS-DOS as the operating system, so commands for formatting, copying, backing up, printing and the modem are not the same. Even file names are written differently! And did you know that there is one Acorn command which, if used in MS-DOS, wipes everything in the current directory?

'ACORN TO PC' enables you to change over painlessly. It shows clearly and quickly how, why and where the two systems (Acorn and MS-DOS) differ. As with a foreign language dictionary, you can use the book to transfer either way – from Acorn to MS-DOS, or from MS-DOS to Acorn.

Price: £9.95 (No VAT)

The Complete BBC Computer User Handbook

If you own a BBC B, B+, Electron, Master 128 or Master Compact, or Archimedes, then this is the book for you. It shows how to get the best from your machine, and how to make it work for you.

Only: **£9.95** (No VAT)

Beeb PC (BASIC)

Designed for program authors to convert BBC programs to run on IBM PCs. **Price: £38**

Beeb DOS 3.0

(Now reads Archimedes Discs)

Beeb DOS is a collection of utilities which run on the PCs and enable it to read and write information on BBC Discs. **Price: £39**

The Complete Mouse User Guide to BBC Micro

This manual has been written to reveal the secrets of the mouse. It explains all the principles required by the hardware and associated software, and also example listings for inclusion into custom programs. The manual first details the basic principles of the mouse and a simple program which uses these principles. This information should be adequate for most applications. However, it is possible to improve the performance of the mouse by expanding on the principles already used in the software. This is again fully explained and an example program given.
It is possible to gain a full understanding of the mouse from this manual. For those not interested in exactly how the mouse functions, complete example programs are also included.

Price £5.95 (No VAT)

Example programs on Disc £4.95

The Epson RX/FX Printer Commands Revealed Handbook

So you bought yourself a new printer, because the salesman in the shop showed you how clever it is and impressed you with all sorts of printouts to show its capabilities – he may even have offered you a special price.
However, now that you have got it home and connected it to your BBC microcomputer, you are wondering how to make it perform these magical tasks. The manual seems to give no clues, and when you type in the example programs, the computer throws the LPRINT statements back in your face.
Now what do you do, when this £400 piece of high technology refuses even to move its head, and you have stayed up until 2 in the morning with copious supplies of coffee, desperately trying to print something out? Once again, Watford Electronics comes to your help with our new book entitled 'THE EPSON FX-KAGA PRINTER COMMANDS REVEALED'.
This book describes in plain, easy to understand English, how to use and make the most of your KP810, PW1080A or any other Epson FX80 compatible printers like Panasonic KX-P1080/1, etc., with the BBC Micro, both from Basic and Wordwise.

£4.95 (No VAT)

Watford Electronics

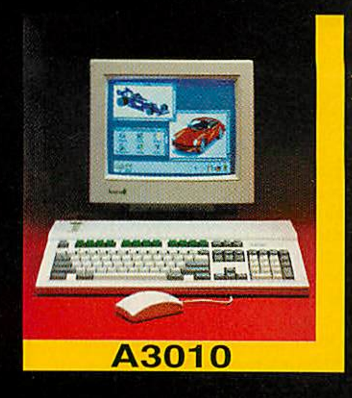
Mail Order & Showroom:

Jessa House, Finway, off Dallow Road, Luton, LU1 1TR, England
Tel: 0582 48 77 77 Tlx: 8956095 WATFRD Fax: 0582 488588

Showroom Only:

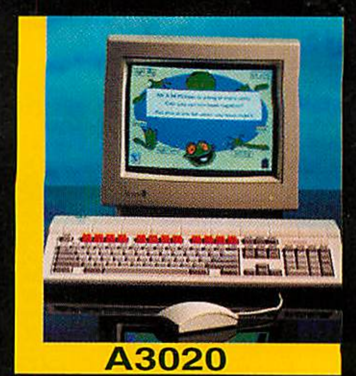
Jessa House, 250 Lower High Street, Watford, WD1 2AN, England
Tel: 0923 237774 Fax: 0923 233642

Prices subject to change without notice and available on request. ALL OFFERS subject to availability. Mail Order and RETAIL SHOP. Trade and Export inquiries welcome. Government and Educational Establishments' OFFICIAL ORDERS Accepted. Shop Hours: 9.00am to 6.00pm, Monday to Saturday. Thursdays 9am to 8pm. (Free Customer's Car Park). VAT: UK customers please add 17.5% VAT to cost incl. Carriage. CARRIAGE: Unless stated otherwise, minimum £3 on all orders. £4 on Larger items. On bulkier items, £7 Courier charge applies (UK mainland only). Overseas orders, carriage is charged at cost. Specifications of all products are given in good faith but are subject to change without notice. Some items vary in their availability. Watford Electronics Terms and Conditions are available upon request. Please ring for latest delivery situation.





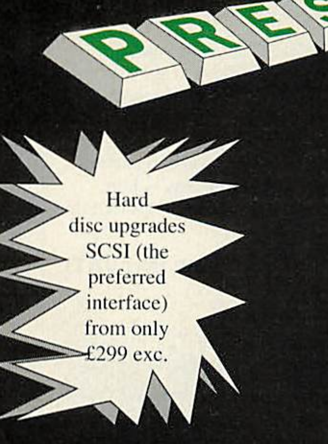


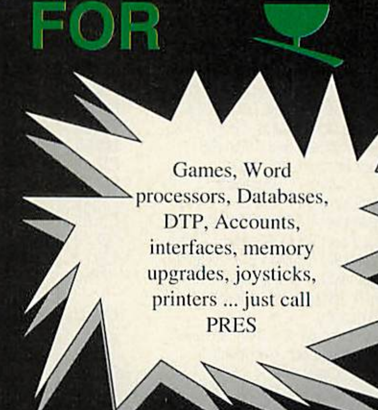


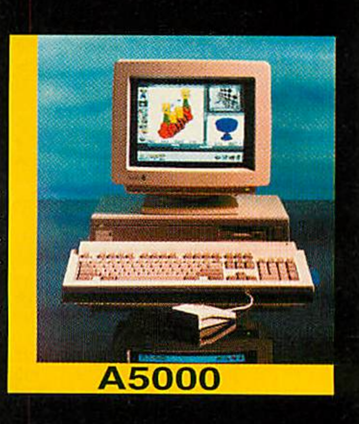
The new range of Acorn Machines. from £499 (inc.) For first class service & support call...

PRES FOR









'MICRO-TRADER' BUSINESS SYSTEM

'Micro-Trader' consists of a powerful range of computer programs to meet the many needs of the small to medium sized business.
'Micro-Trader' provides professional integrated accounts that have been designed by a businessman to meet the needs of the businessman.
'Micro-Trader' has been specially developed for multi-tasking operation under RISC-OS on the A3000, A5000 and Archimedes computers.

'MICRO TRADER' FEATURES

- Integrated SALES, PURCHASE and NOMINAL LEDGERS
- The system can be extended as the needs of the business grow
- Quick entry of information and easy error correction
- Fully Integrated System avoids repetitive entries
- Prints INVOICE, CREDIT NOTE, STATEMENT, REMITTANCE ADVICE
- Prints PROFIT & LOSS ACCOUNT and BALANCE SHEET
- User defined layouts of all printed documents
- All reports can be sent to the screen, disc or printer
- Automatic entry of date – comprehensive Batch Number system
- Unique 'CASHUP' facility for Retail businesses
- Full VAT Facilities and printout of VAT Return
- Double Entry accounts with Audit Trail and Trial Balance
- Integrated STOCK CONTROL program records stock holdings & values

What's been said about Micro Trader

The forms are masterpieces of good layout and the handbook is comprehensive and well written – *MU May '92*

"It is powerful, flexible and certainly a pleasure to use." *Acorn User June '92*

The Micro Trader System is so flexible and easy to use... who says accounts can't be fun? I have really enjoyed using the system on the Archimedes" *- A Yorkshire commercial user*

"Micro Trader offered me all the facilities I required with easily understandable commands at a very reasonable price, especially compared with other PC packages - I am very pleased to say not only is the system excellent but the help and prompt after sales service has been first class- *A Berkshire user*

The system manual is excellent... it is both comprehensive and easy to follow" *Acorn User June' 92*

"... working well. My accountant was very pleased with the display on the monitor and the figures on the reports" - *A Devon user*

"The package was obviously designed by someone with experience at the sharp-end of book-keeping and accounts" - *Acorn User June '92*

THEY CAN'T ALL BE WRONG

The 'Micro-Trader'Business System is easy to use and offers a complete powerful and flexible business system for only £79.95+ VAT for each program module. Please call for information on complete business solutions from only £995 exc. – demo disc availible.

P.R.E.S. Ltd. PO Box 319 Lightwater Surrey GU18 5PW
Tel.0276 472046 Fax 0276 451427

● BBC Master, monitor, 40/80 disc drive with Interword Rom and View, disc box with various discs – £250. Contact N Armstrong, Lewes. Tel: (0273) 472167

● BBC B/B+ second processor – any reasonable offer. Contact Mr B Wright, Hertfordshire. Tel: (0279) 655778

● Electron games for sale: 14 old original games and three other pieces of software – £15 ono. Contact Mr J Mirza, Birmingham. Tel: 021-328 6806

● Master 128, Twin 40/80 drive, £15 Teletext adaptor, software on Rom and disc including Viewspell, Viewstore, ACP, Elite – £300 ono. Contact Mr A Smith, Kent. Tel: 081-650 6612

● BBC B, tape recorder, LX800 printer, joysticks – £50. Contact Ms S Steggall, Wiltshire. Tel: (0225) 744403

● BBC B, twin disc drive, NEC printer, Rom board, Quest paint, Wordwise+, mouse, joysticks, manuals, many games – £200. Contact Mr I Fletcher, Hants. Tel: (0703)252581

● A3000, 4Mb Ram – £650, colour monitor plus stand – £50, internal 20Mb hard drive for A3000 – £175. Contact R West, Leicester. Tel: (0533) 733931 eve

● Master 128k with Pace 40/80 disc drive, Cub monitor, mouse, manuals, loads of games and serious software – £450. Contact M Jefferson, Wetherby. Tel: (0937) 584310

● A3000 4Mb (Learning Curve original), HCCS dual bridge stand, Cub 3000, covers, buying A5000 – £630. Contact Mr P Bentley, Tyne and Wear. Tel: 091-416 1004

● Archimedes 420/1, 2Mb Ram, colour monitor, 20Mb hard drive, Laser Direct 300 printer, 25 games including Interdictor 2, Air Supremacy, Guild of Thieves, all manuals etc. Contact Mrs J Stevens, Birmingham. Tel: 021-427 1613

● A3000 colour monitor, 1st Word, lots of software – £500. Contact M Eales, Essex. Tel: (0708) 250578

● Master 128 (one year old), dual disc drive, 30Mb Winchester hard disc, colour monitor, mouse, Plinth, plus many programs (WP sheet etc) – £600 ono. Contact Mr V Isaacs, Southampton. Tel: (0703) 738073

● Master 128, Opus dual 40/80 drive, Hantarex colour monitor, Star printer, some software, manuals – £650 ono. Contact Mr Moore, Devon. Tel: (0626) 872234

● Archimedes contacts from all over the world wanted to swap PD and Arm routines, 100% reply. Contact Mr T Xavier, 11 rue Ampere, 21000 Dijon, France.

● BBC B Issue 7, Cumana 5.25 in and 3.5in disc drives, data recorder, Teletext adaptor and lots of other bits. Contact Mr J Ainscough, Lancs. Tel: (0695) 570541 eve

● Wanted: Printer and disc drive expansions for Electron plus leads also accessories. Contact Mr D Humpreys, Dyfed, Wales. Tel: (0239) 851678

● A3000, Acorn colour monitor, upgraded to 2Mb Ram, latest PC Emulator, 1st Word Plus, Lemmings, Zarch, Alien Invasion – £650. Contact Mr N Newton. Tel: (0332) 664962

● BBC B 32k, cover, many games including Elite and joystick, tape recorder, Dot Matrix printer (free option!), all leads and manuals, ideal for beginners – £150 ono. Contact Mr S Napper, Southend. Tel: (0702) 585231

● A3000 4Mb Learning Curve, twin drive, colour monitor, LC24 Star printer, sampler, loads of software – £900. Contact Mr S Dent, Bath. Tel: (0225) 316137

● Let's Compute! Magazines, complete set except October 1990, club disc – offers. Contact Miss E Gee, Bath. Tel: (0225) 762984

● Archimedes serious software, Ovation, Beebug C, Tracker and Acorn Prologue – £250 ono (or swap for Z88). Contact Mr D Finch, Doncaster. Tel: (0302) 867824

● Good home offered to any unwanted Archimedes games, especially Top Banana and others – good prices, will consider collections. Contact Mr J Crompton, Oxon. Tel: (0993) 705434

● Ovation version 1.35S original discs and manual – £85. Contact Mr J Phillips, Sevenoaks. Tel: (0732) 454707

● 37 Mb ST506 hard drive, cradle and connectors for 300/400 series – £110. Contact Mr C Reynolds, Aberdeenshire. Tel: (06512) 3248 weekends or after 6.30pm

● Archimedes games: Drop Ship – £11, Guild of Thieves – £10, Arcade Soccer – £9, Tracker music software – £30. Contact Mr M Houghton, Calver. Tel: (0433) 631482

● Anyone in Herefordshire interested in joining a free club. Contact Mr R Bishop, Frome. Tel: (0531) 670493

● Archimedes 410/1, 4Mb Ram, 50Mb hard drive, Arm 3, 5.25 interface, colour monitor, Canon 1080 printer, excellent condition – £975. Contact E Lord, Sussex. Tel: (0342) 714905

● BBC B Issue 7, Watford DDFS1.5T, data recorder, manuals – £160, AMX Superart, mouse –£40, Wordwise Plus, Wordaid – £25, 183 games – £100, 40/80 drive – £45, everything – £365 ono. Contact Mr G Froude, Gwent. Tel: (0633) 265145

● BBC B with 40/80T Cumana drives, Solidisk DFDC, Wordwaie Rom housed in Viglen case, recently serviced – £160. Contact Mr G Steady, Kent. Tel: (0795) 472303

● Archimedes 410/1, 4Mb Ram, colour monitor, 80Mb ZDE hard drive, midi podule, tons of software, as new – £1000 ono. Contact Mr N Riley, Birmingham. Tel: 021-350 3210

● A3000, 4Mb Ram colour monitor, application discs, games – £650. Contact Mr J Walker, Leicestershire. Tel: (0455) 557260

● Master 512k. colour monitor, Cumana 40/80, double drives, mouse, Gem software, joystick, various games, light pen and software, Epson Printmaster, manuals – £600 ono. Contact Mr M Kelsey, Surrey. Tel: (0932) 347605

● Master 128, colour monitor, 5.25 disc drive, printer, Modem, mouse, DTP package, lots of software – £450. Contact Mr M Friar,Southampton. Tel: (0703) 732109

● Archimedes A410/1, 4Mb Ram, colour monitor, Acorn DTP, Pipedream 3, 1st Word Plus, Elite and many more, all immaculate – £800. Contact Mr D Wright, Cheshire. Tel: (0298) 813840

● Master 128/512, twin drives, colour monitor, Gemsoft and mouse – £430, Music system: 128/turbo twin drives, Music 5000; 4000 (keyboard); 2000 (Midi) – £510. Contact Mr M Edmunson, St Albans. Tel: (0727) 59450

● BBC B, geen mono monitor, APTL board, Wordwise Plus, Wordease, printer, 40/80 disc drive, joysticks, software – £245. Contact S Rawal, Hertfordshire. Tel: 081-441 3142 eve

● Wanted: Anything on 3in compact disc. Contact Mr N Jones, Cheshire. Tel: 051-424 2693

● Master twin disc drive with games and manuals, Philips monitor RGB high resolution – £475. Contact Mr D Gailey, Cowley. Tel: (0895) 233798

● Master compact with Mega3 Rom – £250, 14in colour monitor – £80, Opus 40/80T drive – £80, the lot – £300 +p&p. Contact J Malloch Brown, Sidmouth. tel: (0395) 513 252

● Wanted: colour monitor, medium or high resolution, suitable for compact, also Mertec compact companion, reasonably priced please. Contact Mr D Wildsmith, Wiltshire. Tel: (0380) 870030

● A3000, 2Mb Ram, Acorn colour monitor, educational software, manuals, mouse, excellent condition – £595. Contact Mr A Harvey, Derby. Tel: (0332) 666710

● A3000, 4Mb memory, Philips colour monitor and stand, Deltacat joystick, Splitter box, software, all boxed as new – £750. Contact Mr P Taylor, Bradford. Tel: (0274) 674536

● BBC B, Issue 7, tape drive, over 36 original games, all leads included – £85. Contact Mr K Bhattacharya, Wembley. Tel: 081-904 5046

● A3000, Acorn colour monitor, PC Emulator, Learning Curve software and all manuals – £700, Technoua graphics printer – £30. Contact Mr M Robinson, Devon. Tel: (0822) 854166

● Two Acorn Cambridge workstations CB+64, 80UDS floppy, 20Mb hard disc, ADFS, 1770 DFS, NFS, colour monitor 32016 4Mb co-processor, software and manuals – £400 each ono

● Z88 plus two 128k Ram packs, 32k Eprom PC Link, printer cable, RS232 cable (value £482), excellent condition – first £130 secures. Contact Mr W Jackson, Dunmurry. Tel: (0232) 610602

● A3000, 2Mb, colour monitor and stand, software including Illusionist, Render Bender 2, Elite and many other games and utilities – £600 ono. Contact J Hanshaw, Reading. Tel: (0734) 575 952

● A3000, 2Mb Ram, Multisync monitor, upgraded serial port, Acorn DTP, 1st Word Plus, Genesis Plus, games etc – best offer. Contact Mr J Wimsett, Middlesex. Tel: 081-898 84470

BAU FREE READER ADS COUPON AUC

Why not take advantage of our free reader ad service? Fill in the details below and send this coupon (or a photocopy of it) to: Free Ads, BBC Acorn User, Redwood Publishing, 101 Bayham Street, London NW1 0AG.

Your Name...Tel: ....

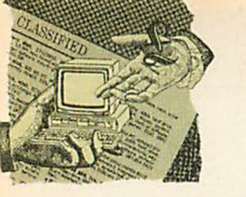
Address...

Please write your Free Ads details here (in block capitals please). Maximum 25 words.

....

....

....



FREE ADS

● BBC B with floppy drive, Challenger 256K Ram drive, Wordwise, Watford Ram card, lots of software, mouse, joystick, manuals – £325. Contact R Pennicott, Reading. Tel: (0734) 441898

● Archimedes joystick interface – £20, lots of Archimedes games for sale, Game Gear unwanted present one game – £80. Contact Mr T Jackson, Exeter. Tel: (0392) 55605

● A5000, 81Mb hard drive, 4Mb Ram including keyboard and mouse, brand new – £500. Contact Mr S Parry, Surrey. Tel: 081-669 8109

● My dyslexic ten-year-old was advised to buy a computer, I bought a second-hand BBC B – It has no instruction/handbook. Can anyone help? We're poor and confused! Contact Mrs S Richards, Lancs. Tel: (0282) 870931

● Watford Electronics Diagnostics disc for the BBC micro including manual and jumper wires – only £12 including postage. Contact Mr J Briggs, Staffs. Tel: (0543) 491867

● BBC B and master compact compatible Play it Again Sam 5 5.25 disc, 40/80T, unwanted gift – £6 ono. Contact Mr M Meredith, Southgate. Tel: 081-368 4698

● Advanced disc toolkit Rom, disc utilities for BBC/Electron – £15. Contact Mr G Laidlaw, Inverurie. Tel: (0467) 43896

● Oldham Overlay Keyboard and Archimedes AKA10 1/0 expansion, brand new – £170 or offers. Contact Mr C James, London W12. Tel: 081-749 3671

● A5000 2Mb and 40Mb hard drive computer and multisync monitor with free software, brand new unused, cost £1761, accept – £1599. Contact Mr R Darlington, Manchester. Tel: 061-799 9845 eve or weekend

● Serial Port joystick interface with two joysticks, cost £55 – only £35 ono. Contact Mr B Schofield, Nottingham. Tel: (0602) 372874

● BBC Master – £250, Microvitec Cub 1451 colour monitor – £150, double drive – £100, Canon dot matrix printer – £100, all perfect working order. Contact Mr C Wallace, Hamilton. tel: (0698) 420691

● Wanted: Gemini Datagem database Rom for BBC B. Contact P Watson, Essex. Tel: (0742) 528356

● Wanted: cheap Z88, graphic/art, software, general software especially and hardware all considered. Contact Mr R Bishop, Frome. Tel: (0531) 670493

● BBC B with 40 track discdrive – £155 ono, Epson HI80 printer/plotter never used – £185 ono. Contact (06487) 63771 or (08687) 48795

● BBC B, 40/80 drive, green screen monitor and plinth, Taxan printer, Interword, Spellmaster and Printmaster Roms, excellent condition – £200. Contact I Kennedy, Ayrshire. Tel: (0294) 823862

● A3000 and colour monitor, c/w manuals, discs, PC Emulator – £550. Contact F Cannam, Glos. Tel: (0452) 883

● A3000 with Philips CM 88 33 colour monitor, 2Mb Ram, application discs – £500 (without monitor – £320). Contact Mr R Laing, Colchester. Tel: (0206) 575581

● A5000, 2Mb, Arm 3, Risc Os 3, 40Mb, hard disc, 1.6Mb floppy with colour monitor and Learning Curve, software – £1400. Contact Mr P Kettlewell, Bingley. Tel: (0274) 566746 eve

● A305, 1Mb Ram, colour monitor, external 5.25in drive, 20Mb hard drive, Brother M1209 printer, joystick, games etc. Ideal entry system – £1200. Contact Mr M Edwards, Herts. Tel: (0707) 330361

● BBC B+, twin 40/80 disc drive, Cumana and PSU (Novex) BBC green monitor, all in excellent condition – £175 ono. Contact R Hounslow, Northampton. Tel: (0604) 24486

● Wanted: ADE + on master cartridge, also wanted Spriter and Pointer Rom images on disc. Contact J Lampard, Salisbury. Tel: (0722) 331442

● All Archimedes users are invited to join the Archimedes Users Club. For more information contact J Michalski, 6 Furzeland House, Sheephouse Way, New Malden, Surrey.

● BBC Master twin disc drive and monitor Philips RGB high resolution – £450. Contact Mr Gailey, Uxbridge. Tel: (0895) 233798

● Laser printer for A3000, Qume engine Computer Concepts interface, ten months old, little use, as new – £600. Contact Mr R Weston, Dorset. Tel: (0202) 740147

● Archimedes software: Turbotype – £10, 1st word Plus V2 – £20, Genesis – £20, Statistics – £7.50, Multics – £10, System Delta Reference guide – £10. Contact Mr R Richards, Cardiff. Tel: (0222) 711711

● BBC B, 40/80 disc drive, sideways expansion, Disc Doctor, Wordwise, Dump Out, mouse also 50+ games – £175. Contact A Roulson, Halifax. Tel: (0422) 358874

● Wanted: Hard drive and interface for A3000. Contact Mr D Stevenson, Kent. Tel: (0304) 380245

● Master 128k, 40/80 disc drive, Philips CM8833 monitor, Star LC10 printer, complete inter series on Rom, books, software etc – £450. Contact J Devine, Boloton. Tel: (0204) 25265

● Archimedes 440/1 with colour monitor and manuals, PC Emulator – £950, BBC B with Cub monitor, twin floppies – £175, Star laser printer 8 – £600. Contact G Bailey, Surrey. Tel: (0483) 480632

● Taxan 770 plus Multisync monitor, boxed, decent condition with leads etc – £250 or reasonable offer. Contact Z Chaudhry, London SE7. Tel: 081-856 1516

● BBC B Issue 7, sideways Ram, Shadow Ram 400k disc drive, music 500, Interword Rom and many others, amazing condition – £300 ono. Contact Mr M Knight, Herts. Tel: (0860) 783017

● A3000, 2Mb, AKF12 monitor, joystick/external drive, IF Cumana 40/80drive, software – £750, Risc OS PRM's – £60. Contact Mr M Sann. Tel: (0709) 817648

● BBC B, 40/80 disc drive, Roms mega Rom, Dumpout, plus more, many games including Barbarian 1 and 2 and Pipemania – £249 ono. Contact Mrs A Moon, Hants. Tel: (0420) 84485

● A3000 with Learning Curve, Acorn colour monitor, software, manuals, books – £600. Contact Mr J Foster, Nottingham. Tel: (0602) 414348

● A3000, colour monitor and stand, serial interface, manuals, software, games, magazines, PD discs, condition as new – £595. Contact Mr P Sykes, Pinner. Tel: 081-428 5135

● BBC B, 40/80 disc drive, sideways Rom board, green monitor, joysticks, Epson RX80 printer, some software, all manuals. Contact R Webb, Hitchin. Tel: (0462) 455797

● Southampton Archusers Group meets second monday monthly 7pm in term time at Itchen Ccollege, Middle Road, Southampton. Contact Mr T Lacey, Southampton. Tel: (0703) 552475 for details.

● Electron User magazines, complete volumes 1,2,3,4 – offers. Contact Mr C Ottewill, Harbury. Tel: (0926) 613402

● Acorn DTP – £25, Thesaurus – £12, PC Emulator 1.6 – £25, Post – £1 each item. Contact Mr K Martin. Tel: (0726) 814488

● Master 512k, 40/80 double drives, colour monitor, mouse and PC Emulator, includes Gem software and discs, manuals, mags – £375. Contact Mr S Mawer,Kingston. Tel: 081-942 9001 eve

● Atelier and Autosketch – £55 each, both unused and excellent condition. Contact Mr P Hudson, Grimsby. Tel: (0472) 814287

● Unwanted PC Emulator, multitasking version 1.70, all discs and manuals – offers. Contact Mr D George, Kent. Tel: (0227) 273403

● BBC Master manuals: Master operating system, reference manuals 1/2, advanced reference manual, Welcome guide, View, ViewStore – £5 each or all seven books – £30. Contact Mr P Hodgson, Selston. Tel: (0773) 863215

● Electron, manuals, games – £35. Contact Mr J Woodward, Northamptonshire. Tel: (0604) 870264

● BBC B 32k, OS V1.2, cassette recorder, software and books, boxed, excellent condition – £145. Contact M Ramanna, Coventry. Tel: (0203) 473234

● Wanted: Very cheap Research Machines 380z keyboard, must work, or exchange for broken one. Contact R Clive-Matthews, Dorset. Tel: (0935) 813166 after 7.30pm monday - friday

● Master 128, Star NL10 printer, Interword, Spellmaster all boxed with manuals, software, magazines – any sensible offers considered. Contact Dr A Downie, London E15. Tel: 081-536 1238

● A410, 4Mb Ram, 40Mb hard disc, 1.2 Emulator, Pipedream 3, Acorn monitor – £1000. Contact Mr G Carr, London N10. Tel: 081-883 8535

● 1st Word Plus release 2, excellent condition – £50. Contact Mr I Kennedy, Londonderry. Tel: (0504) 43071

● Cordless mouse – £30, Windows 3 for PC Emulator – £25, all issues of Beebug magazines to volume 5 – offers. Contact Mr A Bradbury, Stoke on Trent. Tel: (0782) 314053 after 7.30pm

● Archimedes A440/1 and Tascan 770+ multisync monitor – £1200 ono. Contact W Jolley, Norfolk. Tel: (0553) 840990 eve

● Citizen 124d 24 pin dot matrix parallel printer, very good condition, boxed with manual and paper – £130. Contact Mr B Peters, Surrey. Tel: (0428) 643888

● Electron with Acorn plus 1 recorder, games and joysticks. View and View sheet cartridges, manuals included – £50. Contact Mr F Smith, Woodbridge. Tel: (0394) 386060

● Wanted: Acorn Midi interface AKA16 – £40, Pandora Inspiration software – £100, Computer Concepts BJ10 Turbodriver – £20. For sale: Top Banana – £7, Z88 developers notes – £18. Contact Mr G Garrett, Bradford. Tel: (0274) 638377

● A3000, 2Mb Ram boxed with manuals, Oak monitor stand, Elite, Lemmings, excellent condition – £400 ono. Contact Mr M Henry, Cardiff. Tel: (0222) 708593

● BBC B Issue 3 tape interface, manuals, leads and lots of software – £85 ono. Contact K Weller, Worcs. Tel: (0299) 400563

BBC

ACORN USER



GAMES

SUPPLEMENT


GUILE
ORBIT EXPRESS
SINGLE FARE
GUILE
What have Solar Sunbathing,
Black hole Astrophysics and the
latest around tunnel hot hatch got in common!...
For the full story enter GUILE
DREAM
a softword publication
Tel: (0789) 450703
(0203) 447707
To order, send a cheque or postal order for £29.95 to Dream Ltd.
The Old School House, Alderminster, Stratford Upon Avon CV37 8NY

GAMES SUPPLEMENT
DECEMBER 1992



COVER ILLUSTRATION
GEORGE SNOW

Editor Karen Donaghay
Games Editor Sam Greenhill
Technical Editor Paul James
Production Editor Fin Fahey
Art Editor Tony Judge
Editorial Assistant Sarah Burns
Advertisement Manager Duncan Pringle
Deputy Advertisement Manager Richard Power
Sales Executive Areef Vohra
Promotions Executive Jane McCann
Ad Production Fiona Senior
Production Manager Jennifer Jeffrey
Publisher Seamus Geoghegan
Publishing Director Michael Potter
Editorial Director Christopher Ward

Published by Redwood Publishing, a BBC Enterprises Company, 101 Bayham Street, London NW1 0AG. Tel: 071-331 8000. Fax: 071-331 8001. Bureau setting and ad typesetting by Bold Gray Design, 52 Rosebery Avenue, London, EC1R 4RP. Colour by Trumps Studio, Ware, Herts. Printed by Cradley Print Ltd, West Midlands. Distributed by BBC Frontline, Park House, 117 Park Road, Peterborough.

ABC Member of the Audit Bureau of Circulation

Redwood Publishing is a registered data user. ISSN 0263 7456.

PRODUCED ON THE ARCHIMEDES

All the editorial pages in BBC Acorn User are produced on a DTP system using Acorn computers, Computer Concepts' *Impression 2* with Laser Direct printers and Taxan monitors

CONTENTS

GAMES ARE GO!

This year, the Acorn games world received a significant boost: a new games machine, the A3010. It has a sleek grey case, two joystick ports and a built-in TV adapter. But more than that, it has the power to give the games industry a healthy prod in the ribs, as more and more software houses realise that Acorn as a company is growing younger by the day. Although it has yet to advertise in satirical magazines such as *Viz*, where another computer manufacturer recently plugged its product alongside a large and somewhat unprintable word that one could hardly miss, Acorn is definitely moving towards the entertainment end of the spectrum.

And so it should. There are now more games available for the Acorn 32-bit range than there are for the console-based Nintendo system or the Sega Megadrive. The list at the back of this supplement shows how many 32-bit games have been produced for the Acorn range and it is growing steadily all the time. The next hurdle that Acorn needs to negotiate is to improve the quality of those games, for let's face it, a few of them are not worth the disc they're magnetised on.

Over the past 12 months, the swing has been towards converting games which were highly successful on the Amiga to Acorn format and often improving them in the process. Only when a large enough base and an efficient enough conversation process becomes a reality will we start seeing games which stretch the 32-bit power the machine has to offer. (And you could be designing that game – see the competition pages for details!)

When the BBC micro market needed a bit of encouragement, nearly ten years ago, Acorn created the company Acornsoft to act as a catalyst, and some of the best games available rolled off the production line as a result. Now is the time for another push, so that the new A3010, combined with the new mentality slowly forming in the games industry, can be exploited in a constructive way.

Meanwhile, there are more games on sale this year than ever before and the quality has improved ditto. In this special games supplement the best games on offer are examined and presented; we take a look at how joysticks and loudspeakers can make the action more real; and, in the biggest competition of its kind there is the chance to win enough games to keep you going until the cows come home. Enjoy it, and happy playing!

Sam Greenhill



GAMES PEOPLE PLAY

We asked a wide selection of Acorn User people to nominate their favourite game and came up with an equally wide selection of answers

SAM GREENHILL

Games editor

CHOCKS AWAY
The Fourth Dimension
£24.95

If there's one thing I like, it's a good two-player game and I've not found one I like better than *Chocks Away*. Flying a Tiger Moth is dead easy, and you never have that silly practical problem of running out of bullets.

It is great fun to sit down with a friend and throttle up on the same runway, take off and head towards the destination side by side, shoot the hell out of the enemy planes and ground installations together. My friend can circle and cover me while I attack, or he can watch my back if I'm low on fuel and I need to get back to the base as quickly as possible.

I love the way I find myself almost – but not quite – congratulating the computer on its fine tactics as if we both came from the same military school of thought and later joined opposites sides of the battle.

I love the realistic sensations of loneliness and responsibility that creep in when I see my friend bite the dust out of the back window and I love the variety of challenges the game makes you face, like landing on an aircraft carrier or flying beneath a long pier, especially when you both need to land to refuel.



Chocks Away is probably the most addictive diet plan ever devised

The snow and thunderstorms in the *Extra Missions* version makes for whole new exciting scenarios and bonus features like special viewing angles are a real boon. *Chocks Away* is probably the most addictive game I have ever played.

TONY JUDGE

Art Editor

SUPERPOOL
Fourth Dimension
£24.95

It all started as a usual night in the local. I had just planned to pop in to the Oak Tree for a couple of pints of Ped and then shoot back to keep her indoors off my back. I'd only been there for over five hours when who should walk in, but me old mate, 'Pool Geek' Fin.

'Fancy a quick game?'

'You're on, Rack 'em up and I'll get the drinks in . . .'

A couple of very close games, both on the black, one each, then 'Pot-em-all' Paul and 'Cannonball' Karen arrived. We had a bit of a knock around; Fin and Karen had a pool marathon and Paul forgot which game he was playing, having to shout 'fore!' every 10 minutes, as the white flew towards two unsuspecting locals.

A few jars later, my game was starting to come together just as the challengers began to emerge from the woodwork. Time for some serious concentration, but not straight away, as the first game was against 'Dutch' Elmer. Nice chap and I suppose he could be quite a good player, but he just does no practise. I let him keep his trousers on.

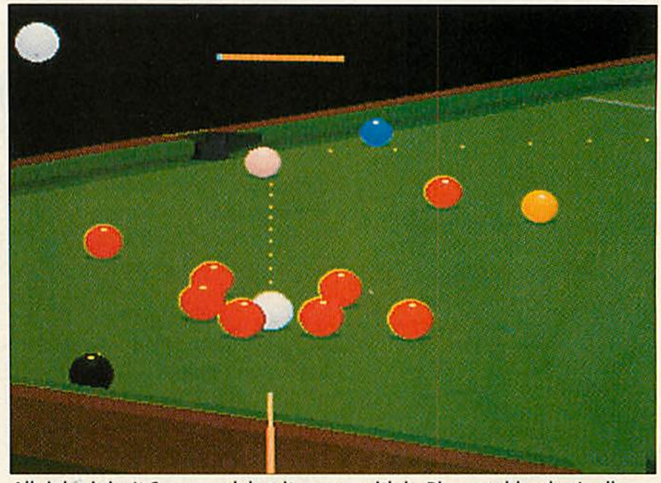
Then it was the turn of 'Toppers' Timms, a complete lovesick fool who is never away from his girlie, 'Tootsie' Simms.

'Fancy a game of doubles?' they say in unison, Babychams in hand.

'Sorry, this is serious stuff and it's just not possible,' I reply gravely.

'Whacker' Bates is on next. A bit of a psycho, especially on Pernod and black, but he's all right when you get to know him, as long as you make sure you throw a few games. This was quite a battle and if it were not for a couple of snookers and a double to finish I could have been in a spot of trouble.

By now it's getting close to kicking out time, 11.25, enough time for another couple for the road and the challenge I've been waiting for; 'Hustler' Harris has his 50 out. It's the toughest game, lasting 22 minutes, then on the last red the pressure gets to me – or maybe it's the drink – it rattles round the jaws of the bottom left pocket.



All right, it isn't Superpool, but it comes with it. Bigger table, that's all . . .

I know it's all over, and Harris very competently cleans up. The worst thing about this is his annoying habit of replaying the black from exactly the same position, and he never misses. Talk about rubbing your nose in it.He turns triumphantly towards the bar, but somehow my cue slips out of my hand and cracks him quite hard across the shins.

He doesn't seem to suss that this is an accident and, before you can say 'screwback', I find myself trying to focus on the scoreboard with a loud ringing in my ears.

'Where the bloody hell are you, Tony?' screams my sweetheart. I flinch and move the receiver slightly away from my ear. 'Sorry love, I had this *Acorn User* games supplement to finish. Just leaving.'

SARAH BURNS

Free ads editor

TETRIS
Public domain

As *BAU*'s official beginner, I always find games too complicated, with so much manoeuvring or manic busyness on the screen that they demand too much concentration for my liking. I have enough difficulty coping with instructions. Which is why I love the simplicity of *Tetris*.

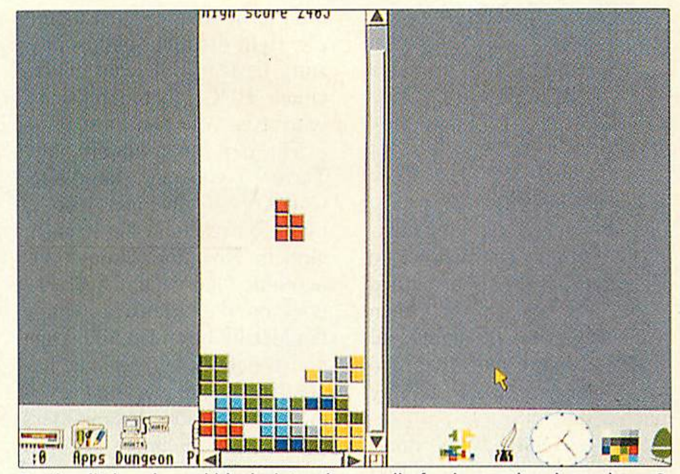
It's available for all machines, including Gameboy and arcade machines, but it goes without saying that the Arc version is tops. No dodgy theme tune, no violence, no macho muscular hero, no space ships or swirling asteroids – and no instructions – just coloured falling blocks that you have to fit into place.

It doesn't require a great deal of thinking, which is brilliant, as you can talk on the phone at the same time. Everyone knows how to play it. Challenge someone and it's impossible to keep away from the computer and should they beat your super-fantabulous highest score, declare war.

The computer is a mean *Tetris* player; set it to auto and the shapes fall exactly into the right place. Watch the score soar and what the hell, why not pretend it's yours. Me, I always do.

It's totally addictive. Experts say that it exercises the right side of your brain (you know, the visual, creative bit) and it has now come to be an executive toy.

So why not take time out from your adventures and shoot-em ups and try *Tetris*. You know it makes sense.



Putting little coloured blocks into place really feeds your head, you know?

CLAIRE JOHNSON

Educational consultant

THE CRYSTAL RAIN FOREST
Sherston Software
Price £39.95

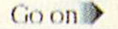
I have never been very keen on the kind of computer games that require me to shoot fast-moving missiles, but I do enjoy the type of games that lead me on adventures and give me problems to solve. I use these games in classrooms with children so that we can explore places we might never go to or even that don't exist.

In Sherston Software's *The Crystal Rain Forest*, the class can help save the planet Oglo's last rain forest by finding the magic crystals hidden deep in the forest. The first visit on our adventure is to Bridgetown, where visits to the pyramid museum, the robot temple, the garden and the jungle tax us with puzzles.

Finally, we have the map we need and we head off up river. More problems; guiding our boat through rapids, logs and catching barrels of poison until we finally find the crystals – only to have them dropped by the monster! Back to the computer to build our own, and save the planet.

All the problems are designed around the language Logo, and this is definitely one of the nicest ways of programming I have come across, because you don't realise you're doing it. I didn't stop until I'd finished, and that took me three hours; the children never need stop. They can start where they finished last, solve the problems and design crystals until everyone is happy; including the King of Oglo.





If Oglo's worth saving, it can't just be for its, um, mellifluous name

ROB MILLER

Graphics columnist

SWIV
Krisalis
£24.95

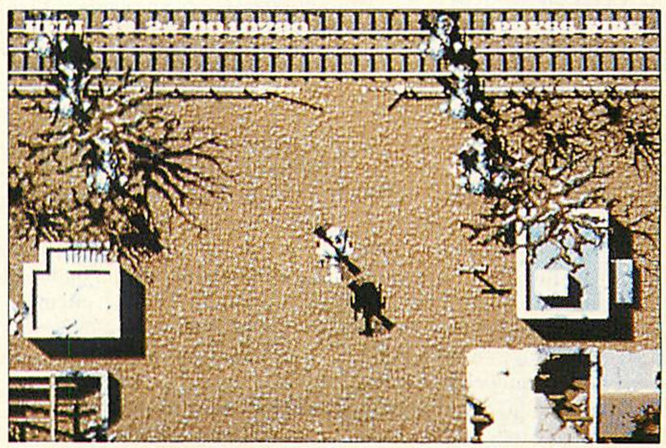
Once, proper 'shoot-em-up' games on the Arc were virtually non-existent. Along came *SWIV*, everything a true 'combat' game should be; smooth and fast graphics, lifelike – and loud – sound effects and plenty of action.

Set over a continuous vertically scrolling landscape, *SWIV* puts you in command of either a highly-manoeuvrable helicopter, or a more solid, land-based jeep. The sole purpose of the game is to travel as far as possible, destroying enemy buildings and vehicles on the way.

When you start the game, the only weapon in your possession is a rather weedy gun. If, however, you manage to pick up bonus icons along the way, you can soon build up an arsenal of quite awesome capabilities. The enemy vehicles on latter parts of the game are particularly vicious, and a full complement of weapons is essential for progress.

What really grabs the attention is the perfect mix of seemingly never-ending action, and the essential 'I'll just have one more go' factor.

The further you get through *SWIV*, the harder and more fun the game play becomes. The general 'arcade-feel' of *SWIV* puts it shoulders above anything else currently available for the Archimedes, and if you want an arcade game at home, this one really is the only choice.


SWIV turns you into an instrument of steamrolling death and destruction

KAREN DONAGHAY
Editor

CHUCK ROCK
Krisalis
£25.99

In Japan – it seems – they have a novel way to deal with stress in the office. The wound-up executive goes into a padded room, screams a bit, then beats the living daylights out of the company punchbag and goes back to work feeling much better.

Strange really. Why don't they just provide their ailing workforce with a copy of my favourite game. *Chuck Rock*. It has all the necessary stress-relieving qualities. Vaguely hypnotic sound effects. No long term strategy, just a simple fight-or-flight philosophy. But, best of all you get to chuck HUGE boulders at all who cross your path.

The plot has a classic me-Tarzan, you-Jane storyline. Chuck is a caveman who is intent on rescuing his woman, Opheli. Roaming through his neolithic landscape, Chuck has goes on the offensive with a boulder by his side. And when he isn't chucking rocks, he has another technique, that even the English football supporters haven't caught on to yet . . . the belly butt.

This Chuck is no 'new man'. Surrounded by empty beer cans and grunting to himself, it all sounds horribly familiar. And so, my only quibble is that I would like to see the heroine, Ophelia, out looking for another muscle-bound hunk. Because, to be perfectly frank, no self-respecting female (stone age or otherwise) would give poor Chuck the time of day.


Chuck is the flesh-coloured thing; the grey, intelligent bits are rocks

DAVE LAWRENCE
**Info editor*

WONDERLAND
Magnetic Scrolls
£24.99

Having to choose one game as a favourite is a difficult task – I like many different games for many different reasons. In the end I've settled on Magnetic Scroll's *pièce de résistance*, *Wonderland*.

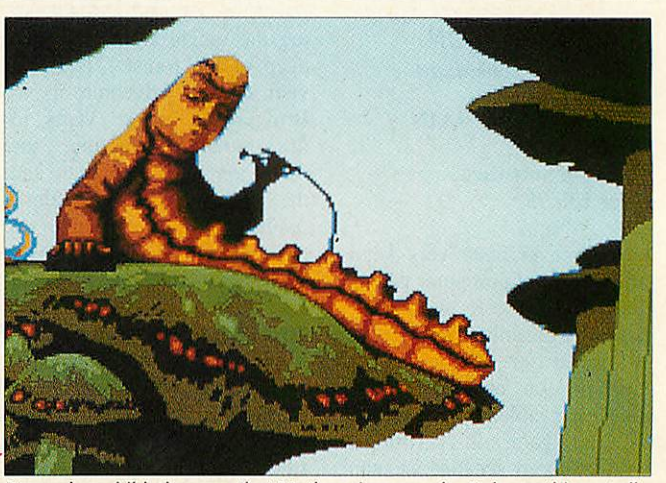
This was the first adventure to be written using the Magnetic Windows adventure environment, a Wimp system complete with automatic mapping, inventory windows and the occasional exquisitely illustrated, and sometimes animated location.

Apart from its unfortunate similarity to another well-known desktop environment – and hence lack of all those Risc OS features we're used to – this is a wonderful way to explore a world full of Mad Hatters, magic potions, sherbet-crazed caterpillars and elusive playing cards.

Items can be dragged to pick them up and drop them, double-clicked to examine them and a complete menu system allows you to enter just about every command without resorting to the keyboard.

I think my main reason for liking *Wonderland* is that it is sensibly balanced between maintaining the story line, while still including some fiendish puzzles. Even if you do get hopelessly stuck, the comprehensive on-line help system will get you out of just about every jam (or teapot).

MS, by the way, is busy converting its back catalogue of games to run under Magnetic Windows.


Remember, child, the ones that Mother gives you don't do anything at all

MATHEW TIZARD
Games reviewer

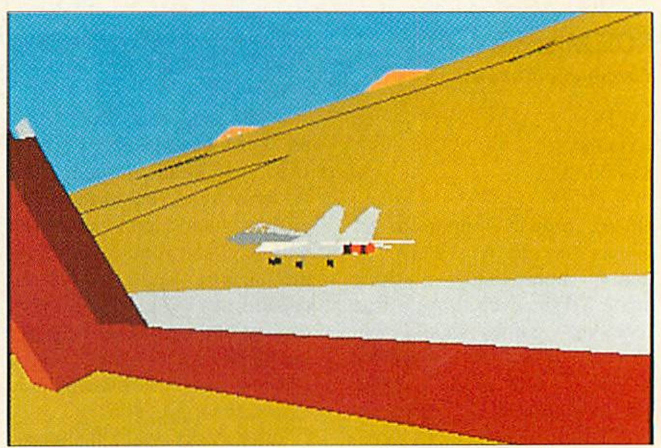
MIG-29 Fulcrum
Domark
£44.99

This is my sort of game; a flying simulation you can really get your teeth into. Most games in this genre are sluggish and unrealistic, but the sheer power of the Arc means that the programmers have been able to model the forces and torques on every part of this famous Soviet fighter, and let you fly it in real time.

On top of this, there are a series of missions, each one in a different scenario and with the proper technological and political background. You learn how to handle the plane in a training area with dummy targets and 'drones' which you can just shoot out of the sky.

Later on though, it gets harder; the enemy planes actually come to get you, all their missiles have radar, and you have to rely on your skills as a pilot to survive. You have full control over the engines, weapons systems and radar (or not as the case may be).

It certainly takes some getting used to, but once I'd got the hang of it there was no stopping me. I especially liked the ability to have an outside view of the plane; you can even fly it by remote control and observe from the tower. There's a real feeling of motion as the MiG pitches and rolls about in response to the mouse, and you sometimes have to concentrate on killing the bad guys at the same time as keeping down your breakfast.


MiG-29: one of the few Russian products with export potential

GRAHAM BELL

Redwood systems manager

TWIN WORLD
Cygnus Software
£19.95

Everyone plays games on their machines, including me. But it's my beep-victim girlfriend who plays most. Really. It is. Choosing a favourite, she says, is difficult. *Chuckie Egg* has wasted more time than anything else over the years: *Frak*, *Revs*, *Elite*, more recently *Prof Mariarti*, *MiG-29*, *Lemmings* – they've all been favourites. Cygnus Software's *Twin World* is another.

What I, er . . . she, liked about *Twin World* was primarily its cuteness. The snub-nosed, freckle-faced hero, his silly bootees, and the wonderful way he skids when he changes direction or waves goodbye at the end of a level. Winsome.

Based in a land of mythical beasts and dark forests, the game is a quest to find the missing sections of an amulet. She eventually did find one section at the far end of each of the game levels. Odd, that.

At heart, it's just a standard graphical adventure, though each ground level section has a subterranean 'twin town' to add interest. The dull greens, ochres and umbers of the game screen evoke just the right mood of dampness and mystery, and the animation of the hero, birds, goblin-things, snakes and three-headed dragons is remarkable. Progression in the game depends on discovery.

Atmosphere, animation, addictiveness. Enough things beginning with A to make me, um, her, keep returning to it.



Everyone's favourite fashion victim plods off in search of the amulet

FIN FAHEY

Production editor

POPULOUS
Krisalis
£29.99

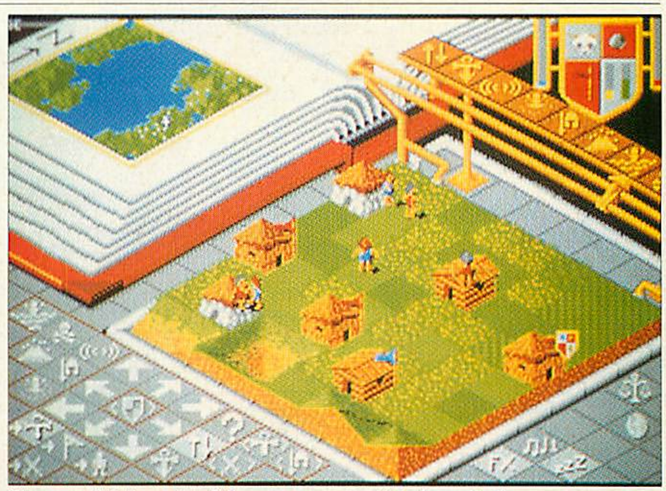
It's hard to pick out any one game; the one I'm playing like mad at the moment is Matt Black's *Chaos* (reviewed in this month's Game Show), but that's because it provides some excellent blast-em-up relief from the frustrations of producing *BAU*. It's great, but it isn't a game that'll have lasting appeal for me.

For longlasting game appeal, you can't beat something with a bit of strategy in it, and for me this means a toss-up between *Sim City* and *Populous*, both of which have been widely emulated, but never excelled (except by *Populous 2*). *Populous* is the clear winner, as the ur-god game, that spawned many imitators.

The key to *Populous* is that it simultaneously appeals to the best and worst elements of human nature. You hover in a god-like fashion over a nation of little animated tribespeople, and your goal is to evolve them up the technological scale so that they can enjoy the good things in life; flushing loos, ring-pull cat food cans and *El Dorado*.

Besides helping out in a generally benign sort of fashion, there is a dark side; like an Old Testament Jehovah, you are mandated to smite the enemies of your people with earthquakes, floods and the like. No pain without gain.

Four years after it first appeared, *Populous* still looks great, and I may well be playing it for four years more.



Stone walls? A waste of time; no-one can hide from God . . .

PAUL JAMES

Technical editor

GODS
Krisalis
£25.99

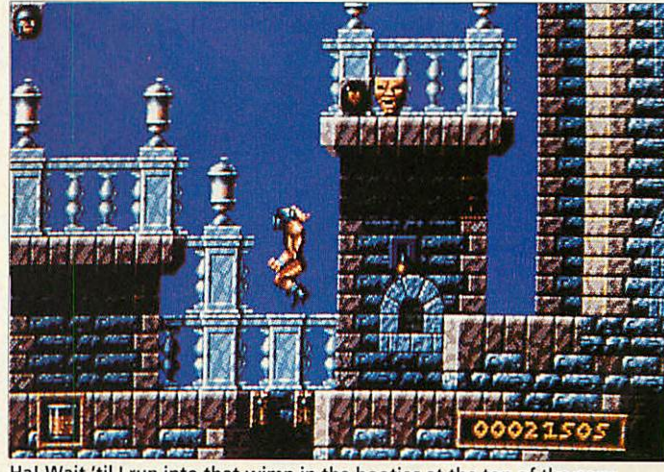
I may be tall, and I'm no wimp, but if I ever feel like being a *real* super-hero then I can escape into my favourite game, *Gods*. In my muscle-bound persona I can throw axes like they were twigs, beat up powerful dragons, and get completely lost in another world.

Starting with a couple of daggers, I can increase my power by collecting or buying magical potions and other weapons. My task is to fight my way to the end of each world, where an all-powerful guardian awaits to be slaughtered by my very own hands.

On the way though there are lots of puzzles to keep me amused. I have to switch off traps, open trapdoors and work out how to get to keys, all the time defending my life force from energy-sucking monsters.

Gods is an example of a game that gets the difficulty level exactly right from the start. It took me about two weeks to complete the first level, three weeks for the second, and I'm still trying to complete the third. It's not one of those games that if you don't do well at first you start again. The city of the *Gods* is ever-changing, and there are always new things to find.

Gods leaves me with a feeling of achievement when I do well, and if I do badly then I just have to try again. With enthralling graphics and eerie noises, I will be playing *Gods* for a long, long time until, that is, *Gods 2* comes around.



Ha! Wait 'til I run into that wimp in the booties at the top of the page . . .


THE BEST CONVER
POPULOUS
£29.99
As a Divine Being you have a group of followers from whom you derive your power. The more followers you have and the greater their achievements, the more power you wield. Unfortunately, there is another group of people who follow a different deity. Since there's barely enough room in the world for your own magnificence, two won't do. You must rid the world of the opposition. To do this, you will use your great power to move the earth and your devout followers to crush the misguided.
NEBULUS
£25.99
Down on the planet Nebulus all is not well. Someone or something has been building giant towers in the sea and they didn't even apply for planning permission. In the offices of Destructo Inc. you awake from your afternoon nap with the phone ringing, the boss is shouting about some little destruction job he's got for you and mentions the brand new Mk.7 Mini-Sub and the words "pay rise". You're out of your office in a flash, leaving the phone dangling, as the boss goes on to talk about the extreme danger involved.
SWIV
£25.99
ARCHIMEDES BBC A3000
KRISALIS SOFTWARE
Choose between a helicopter gunship or an armou
jeep and prepare to enter enemy territory as part of the elite assault team of SPECIAL WEAPONS INTERDICTION VEHICLES. Battle against enemy 'copters, tanks, submarines,hovercraft, snowmobiles, mechanised flying fish, giant weapons installations and much more in this vertically s
shoot 'em up.
Lemmings
£25.99
OH NO! MORE Lemmings
£19.99
PSYGNOSIS
Oh No! More Lemmings, 100 new levels of suicidal silliness. But you will need a copy of the original Lemmings to play Oh No! More Lemmings.
Voted the software industry's Game of the Year. "Lemmings" by Psygnosis has to be one of the most playable games ever to be released on the unsuspecting public. "Lemmings" the hit title of 1991, now available from Krisalis for the Archimedes and BBC A3000.
MANCHESTER UNITED EUROPE
£25.99
KRISALIS SOFTWARE LTD.
AMIGA
"Manchester United Europe," takes this world famous club into the European arena of club knockout competitions. Game features:- 2 player option (using joystick) full goalkeeper control, name of player on the ball, new control method incorporating one touch football and aftertouch, animated substitutions, yellow and red cards, sending off, action replays, 170 club badges, penalty shoot outs, Arcade only option, Management only option or full simulation option.
ACOR
HOW
LETTER/FAX
SIMPLY SEND A LETTER GIVING DETAILS OF THE GAME(S) YOU WOULD LIKE, YOUR NAME AND ADDRESS, AND PAYMENT BY CHEQUE, POSTAL ORDER, OR BY GIVING YOUR ACCESS OR VISA CARD DETAILS INCLUDING THE EXPIRY DATE
Krisalis Software Ltd. Te
...TH
KRISALIS SOFTWARE LTD., TEQUE HOUSE, MASONS YARD, DOWNS ROW


SIONS...
TURBO CHALLENGE 2
LOTUS
£25.99
ELAN
OMAR SHARIF'S
BRIDGE
£29.99
£25.99
From the moment you watch "Chuck Rock's" introduction sequence you know that this product is going to be a bit special. This is why "Chuck Rock" has been licensed by both Sega and Nintendo publishers. All of Core Design's Amiga originality has been retained including the parallax scroll.
Lotus Turbo Challenge II is regarded as the best driving game to date. In an amazing piece of programming Krisalis have converted this best seller for the Acorn Archimedes and compatible computers. ▪ One or two player options. ▪ Hair raising hazards, rain, fog, snow, commuter traffic, tunnels and bridges. ▪ The opportunity to race a sleek Turbo Esprit or the stylish Elan soft top. ▪ 8 death defying stages with over 60 checkpoints.
The many features of Omar Sharif's Bridge give you complete control over the game. You can set up your own hands to practice slams, no trump hands, defensive play, or work on specific weaknesses of your game. Explore alternative lines of play with 'Take Back' and "Rebid' features. With the on-disc tutorial, Omar Sharif's Bridge is the perfect way to learn to play the world's greatest card game... with Omar Sharif as your own personal tutor.
32 BIT
O ORDER
MMEDIATE DESPATCH
LORDERS ARE SPATCHED BY FIRST LASS POST MMEDIATELY. CARRIAGE IS PAID BY US IN THE UK. (ORDERS FROM OVERSEAS ADD £3 PER PRODUCT.
FULLY GUARANTEED
IF FOR ANY REASON DISKS SUPPLIED BY US BECOME FAULTY WE WILL REPLACE THEM STRAIGHT AWAY. SIMPLY RETURN THEM TO US ENCLOSING YOUR NAME AND ADDRESS.
99 372290
SS & VISA ACCEPTED
e, Masons Yard, Downs Row, Moorgate, Rotherham, S60 2HD.
0709 372290 Fax: 0709 368403
GODS
THE BITMAP BROTHERS
MUSIC BY NATION XII
PUBLISHED & DEVELOPED ARCHIMEDES BBC A3000 BY KRISALIS SOFTWARE
£25.99
A city lost in Legend. An Unconquered warrior seeking reward. A challenge laid down by the Gods. Taking the role of Hercules, in the ultimate arcade adventure, you must scour the depths of an ancient city in your search for the great prize of Immortality.
JAMES POND
£25.99
UNDERWATER AGENT
MILLENNIUM
When danger threatens in the icy deep, when hope seems lost and the end looks nigh, there's only one fish with the guts to save the day. Now's the time to call James Pond - underwater agent. He's fearless, he's clever, he's Ozone friendly. James Pond, the fish with a mission (twelve missions, in fact), will take on anything.
SALIS
ARE LTD.
E BEST GAMES
OORGATE, ROTHERHAM, S60 2HD. TEL: 0709 372290 FAX: 0709 368403



GIVING IT

With the arrival of the A3010 and its built-in joystick ports, many Acorn users

Joysticks are built for the bashing that they receive, and the right joystick, in the right hands, can mean that a game has less of a chance of beating you into the ground. And there are numerous options around to relieve those well-worn keys.

Adding a joystick to an Acorn machine is simply a case of adding an interface. Of course if you have an A3010 you don't even need to do this, as there are two joystick ports on the back of the machine. Any Atari-standard nine-pin style joystick will do, and there are many of them.

Most games these days will have several joystick options, to cater for the type of interface you have. And most interfaces include software that will let you program the joystick to mimic keypresses, so the games that don't cater for a stick can be forced into letting you use one.

Of course there are games that are better played with the keyboard (the ones that require very precise movements). And some are better played with a mouse or a tracker ball, because a mouse can offer variable speed control making them more suitable for flight games such as *MiG-29* and *Guile*. But given the right game and in the right hands a joystick can definitely improve performance. Here are just a few of the options around. . .

PYTHON 1

More advanced than the Apache, with bumpy grips and a spitting cobra-style shaft that you can really get to grips with.

£9.99 (Quick Shot)

MAVERICK 1

A large joystick. Plugs into both ports and a switch allows two players to use it. Has a very high-quality feel, with excellent fire buttons.

£15.99 (Quick Shot)

THE CRUISER

A simple joystick with two fire buttons and the ability to adjust the pressure on the control shaft to give a sloppy or positive feel.

£10.99 (Power Play)

SURESHOT STANDARD

A see-through joystick, with a good feel and positive fire button. A single button sticks out of the front and it looks as though this unit can take a lot of punishment.

£11.99 (Somnax)

COMPETITION PRO

A tiny joystick that feels very well made. The case is made of transparent green plastic, and it's so tiny that when you hold it, it almost disappears. The box that it comes in doubles up as a trendy disc holder; brilliant!

£17.99 (Dynamics)

APACHE 1

The simplest joystick, with two fire buttons on the handle and a nice 'clicky' feel.

£7.99 (Quick Shot)

NAVIGATOR

Another palm held with a very positive feel and a well-positioned fire button.

£15.99 (Konix)

SUPERSTAR

Five suckers mean that this one stays on the table. Has a very positive feel, and feels like a joystick out of the arcade. Sticks to anything and is transparent. Excellent.

£13.99 (Quality Joystick)

SWITCH JOYSTICK

The most expensive joystick but certainly the best in quality. The shaft can be adjusted to give a lot of movement; about 45 degrees. Good quality all round and a feel as good as that on arcade machines.

£29.99 (Advanced Gravis)





SOME STICK

will be in search of the ultimate accessory. Paul James looks at what's on offer

SUPER PRO ZIP STICK

A solid and simple stick with two buttons and a clever auto fire; rapid burst or continuous.
£14.99 (Sonmax)

AVIATOR 1

Wow. An amazing overkill of a joystick. Big, cumbersome and fun. A bit difficult to play normal games on it, though.

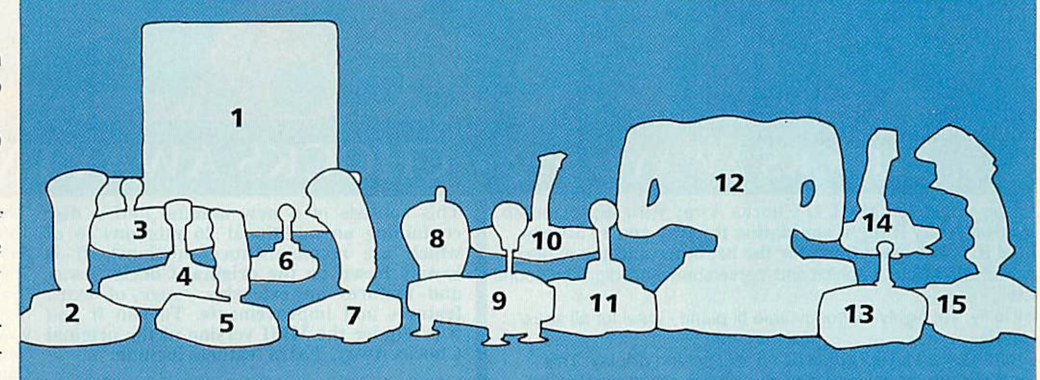
It's obviously designed for flight simulators on other machines, but on Acorn machines you are often better off sticking with a mouse for this type of game.
£34.99 (Quick Shot)

SPEED KING

This joystick is held in the palm of the hand. It has one fire button and an auto-fire switch. This joystick is one of my favourites, and it definitely improves my gameplay.
£12.99 (Konix)

TERMINATOR

Four suckers and a special squeeze trigger are perfect for those games that require hails of bullets. Two thumbs on the fire buttons give it a powerful feel. But the suckers don't stick very well.
£15.99 (Sonmax)



1 The 'games' machine: A3010
2 Python 1
3 Maverick 1
4 Cruiser
5 Sureshot Standard
6 Competition Pro Mini
7 Apache 1
8 Navigator
9 Superstar
10 Switch Joystick
11 Super Pro Zip Stick
12 Aviator 1
13 Speed King
14 Terminator
15 Jet Fighter

JET FIGHTER

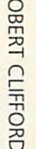
Aircraft yoke-style joystick with strong suckers and all the fire button controls mounted in the head, so all the shooting is done with the thumb.
£12.99 (Quick Joy)

Our selection was chosen and priced from the Virgin Games store, Oxford Street, London.

11 WICKED JOYSTICK GAMES

- SWIV
- Pandora's box
- James Pond
- Zelanites
- Arcade Soccer
- Blaston
- Lotus Challenge
- Top Banana
- X-FIRE
- Cataclysm
- Chuck Rock

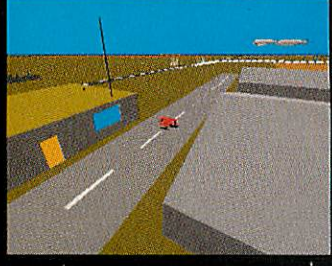
Another way to spice up your games is to make a big noise. A pair of personal headphone sockets plugged into the headphone socket will improve things immediately. Or try connecting this socket to the auxiliary socket of a hi-fi system, (you'll need a 3.5mm jack to phono sockets lead). Turn up the volume, and watch out for the neighbours!





BBC A3000 / ARCHIMEDES / BBC A3000 / ARCHIMEDES / BBC A3000 / ARCHIMEDES

Chocks Away EXTRA MISSIONS







CHOCKS AWAY

This new upgraded Mark II Chocks Away with supersmooth animation really is flight simulation the way you've always wanted it. It has everything for the beginner and the expert:

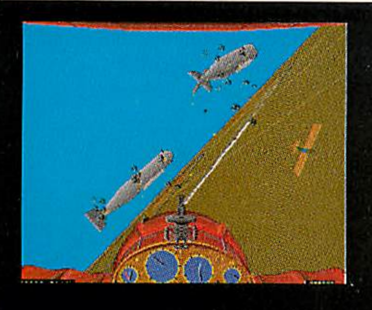
*Beautiful 256 colour graphics and 'nerve shattering' digitised sound effects
*Easy to fly, yet highly manoeuvrable bi-plane - ideal for all ages/ skill levels
***Revolutionary 2 Player Option** using split screen display. This allows 2 players to each fly their own planes simultaneously in practice, dogfights or missions
*Full joystick, dual joysticks, mouse and keyboard control options
***Amazing "Black Box Flight Recorder"** included so that you can record your own flights and then save and replay them. 90 minutes of totally absorbing pre-recorded training flights are included with the game
*Internal/External views of your plane can be selected from front/ rear/left/right
*Powerful 30mm cannon capable of very rapid fire and long range destruction
*Easy to read instrument panel and simple controls
*3 very varied immense maps to explore - approximately 18000 km^2 in total
*20 fascinating and varied missions of increasing complexity are included with a promotion system from Cadet right through to Marshal of the RAF
*Superb range of targets/enemies including bombers, triplanes, fighters, tanks, control towers, anti-aircraft guns, HQs, patrol boats...

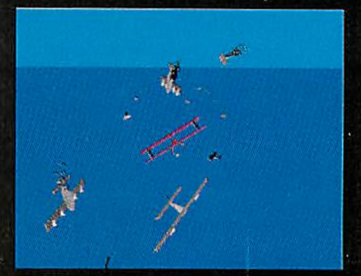
CHOCKS AWAY EXTRA MISSIONS

This consists of a new manual and a disc containing an additional 26 missions (6 of which are reconnaissance missions). It is loosely based on the original Chocks Away and features an extensive range of extra features and improvements. To run it you will require the MkII version of the original Chocks Away. Extra features include:

*16 new & detailed maps based over land & sea.
*20 enemy planes and 20 enemy targets are included in each mission. Over 1000 extra targets and planes have been carefully defined.
*Considerably improved action on all missions with plenty of targets to shoot at and plenty shooting at you.
*You can view the action from any of the enemy planes or targets and your own control tower at any time even while still controlling your own plane or watching a saved flight. There is a selection of tracking cameras (with adjustable zoom lenses!) around the playing arena. In addition a phantom plane can also be selected to follow the action on any of your black box flight recordings.
*Improved enemy pilots capable of performing loops, rolls, stall turns etc.. All enemy planes are carefully modelled using the same equations controlling your own plane. This ensures both an accurate and fair simulation.
*More enemy planes and targets to shoot including: Three Engine Fighters, Enormous Cargo Planes, Airships, Barrage Balloons, Gun Boats, Oil Tankers, Trains etc..
*Six reconnaissance missions where you are required to take photos of various installations with your new on board camera.
*Improved graphics over the 16 maps including Complex Cities, Houses, Railways, Roads, Rivers, Bridges, Lampposts, Railway Stations, Oil Rigs, Piers, Beachs, etc. to mention but a few. In total over 100 different graphics have been defined.
*Serial Port Link Up option so that you can link up 2 BBC A3000 or Archimedes computers and 2 pilots can fly simultaneously in full screen mode.
*Extensive enemy flak guns and improved enemy plane guns help make the new missions both more interesting and challenging to say the least!
*Improved digitised sound effects plus, of course, all the extensive options which are available with the original Chocks Away.

WIN a Superb ......
"Radio-Controlled Biplane"
Successful completion of all 6 Reconnaissance Missions will allow you to enter this competition
TALLY HO GINGER!






ARCHIMEDES & BBC A3000
All versions are compatible with the BBC A3000 and ALL Archimedes Computers

CHOCKS AWAY	(Mark II Version with 1 or {split screen} 2 player options)	£24.95
CHOCKS AWAY EXTRA MISSIONS	(With 2 player Serial link option)	£19.95
CHOCKS AWAY COMPENDIUM	(Chocks Away & the Extra Missions)	£39.95
CHOCKS AWAY NETWORK	(Econet/Midi etc. - Ring for Availability & Price)	

Chocks Away Reviews

Chocks Away Mark I Version was awarded GAME OF THE YEAR 1990 by Acorn User, A&B Computing (now Archimedes World), Risc User & Micronet.
"Graphics in the game are superb, smooth and with plenty of ground detail.......this is a really enthralling flight simulator with plenty of variation and features to ensure longevity." Risc User, Dec '90.
"Chocks Away is a delightful game." Archive, Jan '91.
"Chocks Away is a brilliant game." BBC Acorn User, Dec '90.
"....it's a really great game. Playability 10. Value 10." The Micro User, Jan '91.
"(Chocks Away Mark II Version).. The increased speed obviously makes the game more responsive and fun to play, well and truly overtaking Interdictor II as the best Archimedes plane game." New Computer Express, Feb '91.

Extra Missions Reviews

"I reckon Chocks Away is probably still the best game available for the Archimedes/A3000." BBC Acorn User, August '91.
"How do you improve on a game that left me rushing for my Thesaurus to describe it? Well, those guys at 4th Dimension have delivered the goods once again, and have somehow managed to improve on the best flight simulation on our humble Arc." Club A3000, Summer '91.
"Chocks Away remains, above all, fun. It doesn't really sacrifice realism, but it also doesn't make controlling the aircraft so complicated that you haven't got time to enjoy the game.." Syracuse, Summer '91.
"If you haven't yet seen this game, the screenshots in the 4th Dimension's latest adverts don't do the game justice, simply rush out and buy it. Beware though, once you've played it once, you'll never have another early night." Micronet, June '91.

PRODUCED by The Fourth Dimension .... THE Acorn Games Specialists

Saloon Cars DELUXE





The Improved Driving "Game-ulation"!

UPGRADE for ½ PRICE Only £17.50

This new improved DELUXE version of *Saloon Cars* includes many new features suitable for upgraded machines and A5000s, plus many new features suitable for all machines......

REAR-VIEW MIRROR

Improved rear-view mirror.
Improved improved rear-view mirror suitable for Arm3 users.

COMPATIBILITY

Compatible with Course disc to be released soon (see below).
Compatible with Formula 1 upgrade to be released in response to demand for a decent Formula 1 simulation on the Archimedes (hopefully late 1992).
Compatible with Saved Players from ***Saloon Cars v1.0***.

GRAPHICS

New car graphics, featuring the most sophisticated vector graphics ever seen in a home computer game, allowing full 3D rotations of cars - other cars can actually spin off the track in front of you.
More realistic crashes, allowing other cars to have smash-ups almost as spectacular as your own (2MByte only).
Gameplay has been enhanced immeasurably by the addition of a completely new loading screen.

COURSES

New practice course (Test Track), easier (less hard) to stagger round than the old one.
Even more detailed and realistic features on most courses.
Detailed and Fast modes on some courses to allow use of the full potential of the Arm3 without compromising Arm2 users.

BORING TECHNICAL JARGON

Can be installed onto and run from Hard Disc.
Features minor refinements to the more anomalous features of the original ***Saloon Cars v1.0***. (Most of the bugs have been fixed!).
Unique integration process allowing speed variations in processing to maintain the highest possible frame rate at all times whilst maintaining perfect real time simulation of the race. (The game doesn't slow down when the graphics do!).
Special mode for machines with more memory which uses the extra capacity to enhance the speed and complexity of the graphics.

AND FINALLY

Many more features which we want to be a surprise.
Probably a few more features we haven't even thought of yet, and....a few we didn't think up at all.

OLD FEATURES

Saloon Cars DELUXE still...
does not provide a realistic simulation of a full time office job,
does not make the coffee,
and it still isn't quite as good as actually going out for a drive in a Sierra Cosworth.

OLD REVIEWS OF *SALOON CARS v1.0*

"***Saloon Cars*** is the definitive racing game. It is pure, unadulterated fun." ***Archimedes World '91.***
"Make no mistake: the speed and smoothness of this game has to be seen to believed." ***Syracuse '91.***
"...you cannot help but be astounded at the gameplay." ***Club A3000 '91.***



Acorn A3000, A5000 & Archimedes Price £34.95

To upgrade simply return the whole original *Saloon Cars* directly to us plus payment. We'll send you the newly packaged / enhanced 3 disc DELUXE version on release.



SALOON CARS DELUXE COURSES

The new *DELUXE* version still contains the 2 real courses, Silverstone and Brands Hatch, plus a newly designed wide practice course called Test Track ideal for beginners.







SALOON CARS EXTRA COURSES

This new Course disc contains 3 superb new courses which are only compatible with the new *DELUXE* version. They cost £19.95 and will be released hopefully in late June '92.

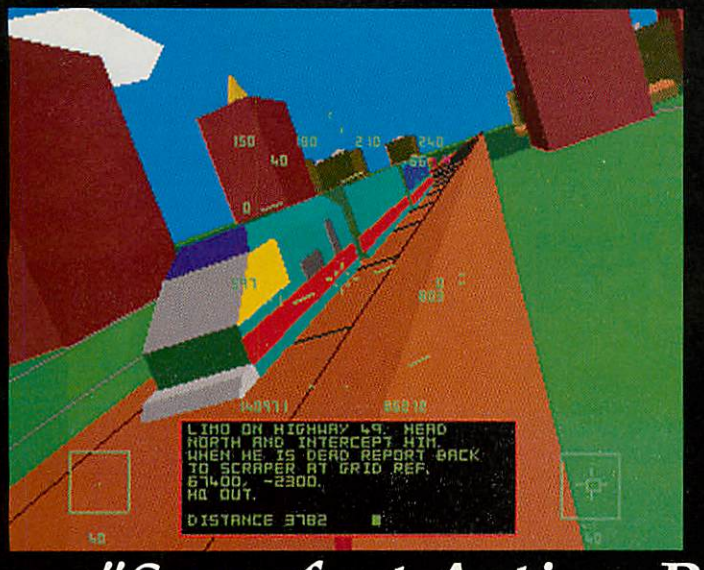






PRODUCED by The Fourth Dimension .... THE 32-bit Acorn Games SPECIALISTS

Chopper Force





"Superfast Action-Packed Chopper Sim"

Superb 3D graphics, stunning sound effects and rivetting gameplay combine in this futuristic helicopter simulation. The Chopper Force is an elite band of police helicopter pilots set up to combat the modern terrorist.

ADVANCED HELICOPTER TECHNOLOGY

Gone are the old-fashioned dials and indicator LEDs of 20th century technology. Instead a sophisticated head-up display and a wide-screen monitor are provided. The monitor brings all relevant information straight to the attention of the pilot - saving the constant scanning of dials and indicators. The helicopter is equipped with powerful retro-rockets which when activated give it much of the power and speed of a jet. With the retros off the full manoeuvrability of the helicopter becomes available. Landing on skyscrapers and lifting equipment with a rope becomes possible.

RANKING SYSTEM

As you climb through the ranks extra equipment will become available. You will also gain privileges such as access to satellite surveillance. Ranking credits will be given for destroying any terrorists that are about when you do your mission as well as for achieving specific objectives.

Ranking debits are given for friendly-fire or civilian casualties that you may cause. To improve your rank you may redo a mission to try and get those terrorists that were missed the first time. Each player has his/her own personal file protected by a password that records what you have achieved so far.

LARGE MAP

The whole game takes place in one gigantic arena with a superb variety of buildings, roads, rivers and other objects. There are over 20 fascinating and varied missions that will test even the most experienced flight simulator fans.

STUNNING SOUND

A large variety of samples have been recorded at a high quality sample rate. The doppler effect is fully implemented just as it would really sound. The volume is correctly calculated using the inverse square law.

SUPERB GRAPHICS

More polygons than ever before are seen at a smooth frame rate. And yet the vector code is extremely flexible, allowing views from EVERY conceivable angle which is made use of with an impressive list of view/tracking facilities.

COMPETITION

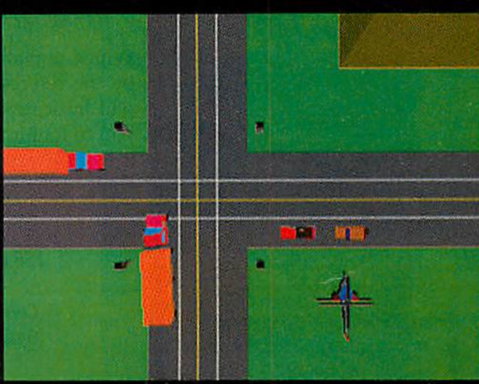
Super prizes can be won by top scoring pilots.

***For All Acorn 32-bit RISC Machines** Including all A3000s, A3010s, A3020s, A4000s, A5000s & all Archimedes Price £29.95*

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU. (0742) 769950 or 700661





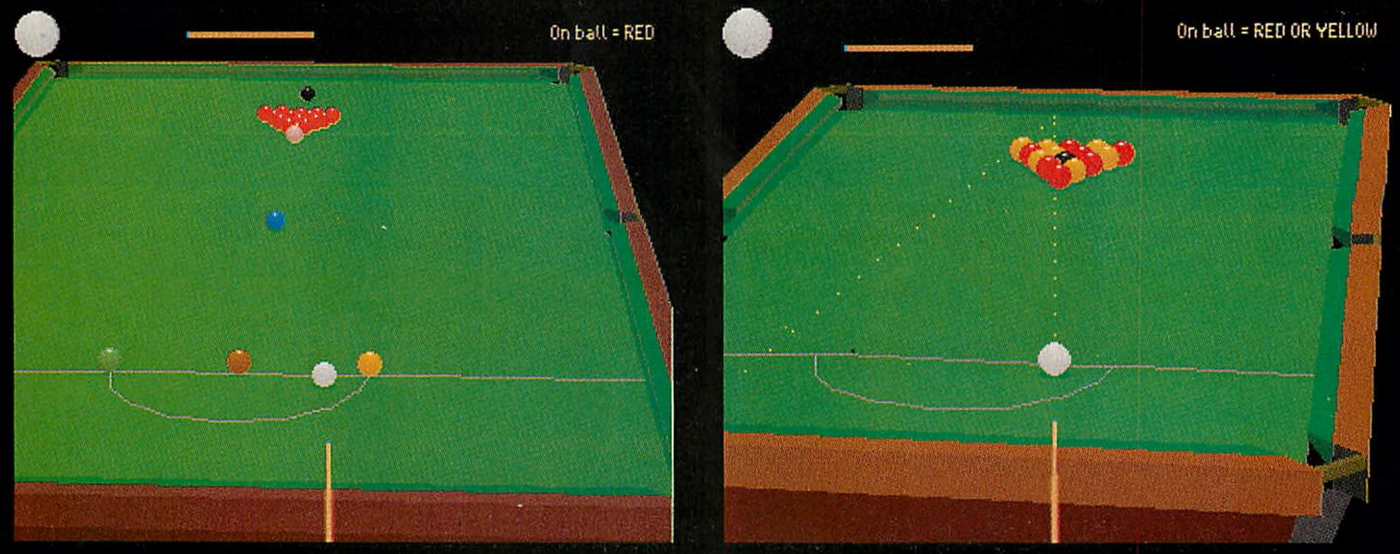








Break 147 & Superpool



"Snooker & Pool Simulator Par Excellence"

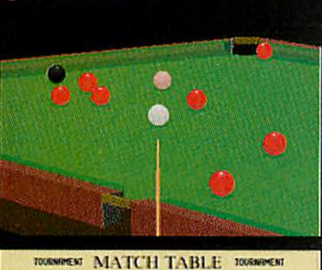
'BREAK 147' and 'SUPERPOOL' are game simulations in the true sense of the word. Gone are the power meters and fixed screw and side settings of inferior simulations and in comes a cue driven by reality software.

As in the real thing your grip on the butt of the cue (represented by the mouse), the smoothness and power of your cue action and the way in which you follow through with a shot, are all deciding factors in whether a pot is successful and whether you will retain position for the next ball. The only thing that is missing is the smokey air and a pint of beer on the edge of the table, these you will have to provide for yourself!

In both games you can choose to play on a practice table where anything goes. You can position balls wherever you wish so that you can improve your potting and positional play. You can even undo unsuccessful shots so that you can try them again. When you make that incredibly fine clip into a pocket or miss by the merest fraction, you can watch an action replay of the shot from any angle so that you can either gloat or see where you made that tiny mistake that let you down.

When you feel that you are up to the task you can play a single match against a friend or against one of the sixteen computer players. Should you feel lazy you can just sit and watch whilst two computer players battle it out between themselves. Alternatively you can enter a tournament where you will have to fight your way through the preliminary rounds and on to the coveted Final.

Whilst you are playing a match or in a tournament the game will be overseen by the referee. If in snooker you are 'on' a colour as in real life the referee will indicate the ball to you that he thinks you are going for and it is up to you to let him know if he is wrong. The referee will also call when a free ball is to be given, if there is a touching ball and your score after each successful shot.





SPECIFICATIONS

256 colour MODE 13 graphics optimized for maximum speed
225k of machine code
Over 147k of high quality sampled speech and sound effects
Ball plotting accuracy of +- 0.05 of an inch on a 12 foot table
Cue butt controlled by the Mouse
Bridge hand controlled by Keyboard

Break 147 & Superpool" is compatible with the BBC A3000 and ALL Archimedes computers

Reviews

"The graphics are so good that certain photos of the game being played could be mistaken for the real thing. The behaviour of the balls and cue are immaculately simulated." Acorn User, Nov '91.

"All aspects of the game are staggeringly realistic, from walking round the table and eyeing up the next shot, to the trajectories that the balls follow when they move....No longer is taking a shot an unconvincing experience comprising of aiming at the ball, selecting the power level, and hitting a key....The release of Break 147 & Superpool is a giant leap from anything ever seen on our screens, to what is arguably the most realistic snooker simulation ever to be found on a home computer." Club A3000, Autumn '91.

Reviews

"Both Break 147 and Superpool are accurate simulations of the sport. The control method works well and the result is two very enjoyable games in one pack.... whether you are a snooker & pool fan or not Break 147 & Superpool are highly recommended." Archimedes World, Nov '91.

"The most realistic snooker sim I've ever seen." The Micro User, Nov '91.

"If you're a snooker or pool fan who wants a quality simulation for the computer then this is it.... In all, an excellent implementation of the game and I'm sure that due to the realistic 3D movement around the table, practice at Break 147 & Superpool may even improve your real game." Micronet, Sept '91.

PRODUCED by The Fourth Dimension .... THE 32-bit Acorn Games SPECIALISTS

Galactic Dan





"A Stunning Ray-Traced 3D Combat Adventure"

United Planets Bureau of Investigation - Internal Memo
Attention: Special Agent "Galactic" Dan Quicksmart

The Vorians have invaded the first moon of the Toorak system, and are using the native Poloids as hostages. Public opinion prevents us retaliating until the hostages are rescued; your mission is to secure their release. You will be transported down to the moon's surface from parked orbital shuttle. From then on, Dan, you're on your own.

You will be equipped with the latest military technology, including a plasma rifle and a sophisticated weapons computer, but your task will not be easy. With the Vorians' deadly array of mechanized attack craft to contend with, not to mention the vicious dust storms of the Toorak moon, you may be lucky to escape with your life.

Game Details

Galactic Dan is probably the best 3D arcade adventure/combat game you have ever seen. With huge, animated ray-traced sprites and fast, real-time vector graphics, the realism has to be felt to be believed. Run around 3D mazes of corridors, rooms, platforms, towers and more, searching for hostages, but be ready to fight the roaming robotic guards, spiders, rotor-guns, and other predators; not to mention the traps, energy barriers and gun turrets.The game takes place on the moon's surface, with sections in the ruined cities, the Poloid caves, the Vorian outposts, and the central military base - and more.

You have full control over your character; he can run, jump, climb, spin on the spot, and aim his gun in any direction. The control system is also totally intuitive, allowing fast movement (no clicking on arrows here!). Combat in this game is a nerve-wracking experience as you try to seek improvised cover from a surprise ambush in cave passages or bombed-out houses. And the game isn't just all combat - there are many tricky puzzles that you will have to solve to rescue all the hostages.

Specifications

-Real-time, full-screen, smooth vector graphics combined with large, scaled, ray-traced sprites to give an unequalled "virtual reality" effect.

-Fast, unpredictable but highly tactical combat with enemies that dodge your fire and use the natural cover to evade and ambush you.

-Fast-response control system that lets you run, jump, weave, turn, inch along, accelerate, aim in any direction and fire (all at the same time, if you want to!).

-Over 180K of sampled sound effects, with accurate stereo positioning that adds to the 3D effect.

-Uses integration to maintain game speed (so the gameplay never slows down or speeds up, but the graphics become smoother on an ARM3 machine).

-Frame rate average 10Hz on ARM2, 50Hz on ARM3.

-Dozens of levels with advanced combat and increasingly difficult puzzles to solve.

For All Acorn 32-bit Machines Including A3000, A3010, A3020, A4000, A5000 & all Archimedes Price £25.95

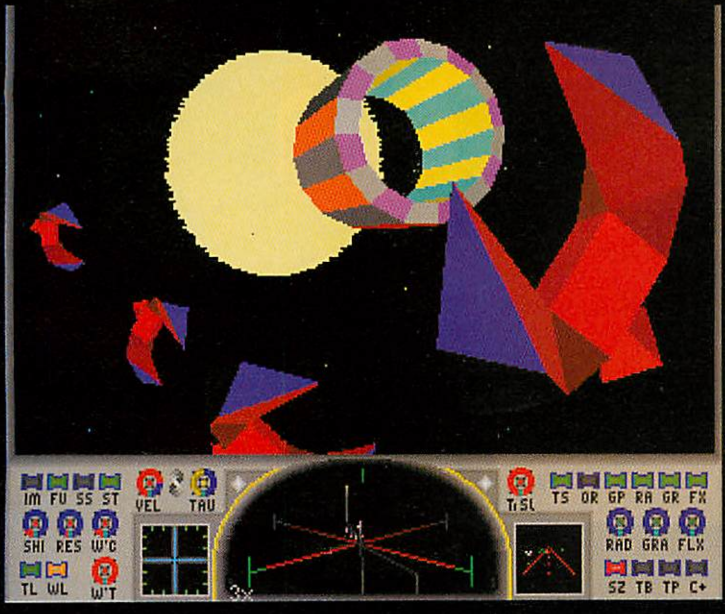
The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU. (0742) 769950 or 700661 ***- Hopefully October '92***

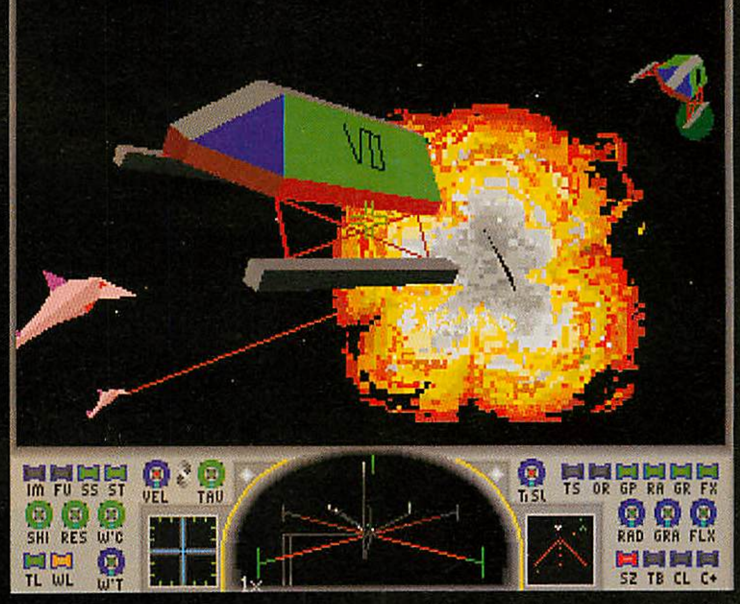


Gordon J. Key's

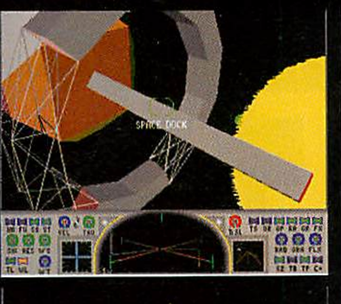
BLACK ANGEL

The Quest for the Key to The Gates of Carrion

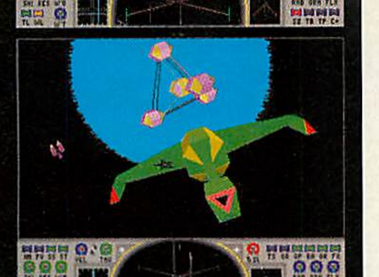




A Huge Brand NEW Innovative 4D Adventure for the 1990s
Brought to You by the Master of 32-bit 3D Programming









The Unique Quest for the Key

The Universe is old, very old, and your fourth generation galaxy is dying. **Chaos Rules With Ultimate Power**. There are no laws save those that nature imposes and any that you choose to impose upon yourself.

Evidence has been uncovered of an ancient civilization which may have inhabited a third generation galaxy. A civilization which seems to have beaten nature's limits of time and motion. A civilization which could travel faster than light. A civilization which may have outlived the death of its mother galaxy and which may even have had the power to leave the Universe itself.

Of course very few people believe what can be read in the five Billion year old religious scripts. They choose to believe that the Star Gates are a natural phenomenon, they choose to become extinct.

The objective of the game is to seek out and find the many parts to the key to the Star Gates, with which you should be able to escape from your dying galaxy to begin life again in a better place. This key, which is actually a huge computer program, has been split into a multitude of small pieces and hidden throughout the galaxy inside eight dimensional caskets. You have been given the clue to the location of the first of the caskets which lies in the star system of Atisco.

The Innovative 3D & 4D Reality

Black Angel represents a significant advance in graphics as used in computer games. Craft controls function correctly for ALL directions of movement and enable you to look and fire your weapons in any direction, regardless of the trajectory that your ship is following. The loss of control for certain directions of flight that occurs in the normal type of flight simulator/space game does not happen in this program.

In addition to this other craft that you will meet are not the simple convex surface triangles that you find in older inferior games, they are fully ordered multi-concave surface objects. It is thanks to the overwhelming power of the Acorn 32-bit RISC Technology that makes it possible to write the code to plot such objects in real time.

Also for the ultimate in reality, Black Angel is the first game to encompass the fourth dimension of Time. Your craft is subject to all the laws of relativity that a real craft would be. Of course scaled down so that it doesn't really take you several years of game playing to reach the nearest star!



For All Acorn 32-bit RISC Machines Price £34.95
Including all A3000s, A3010s, A3020s, A4000s, A5000s and all Archimedes

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU
Tel. (0742) 700661 or 769950

PRODUCED by The Fourth Dimension .... THE 32-bit Acorn Games SPECIALISTS

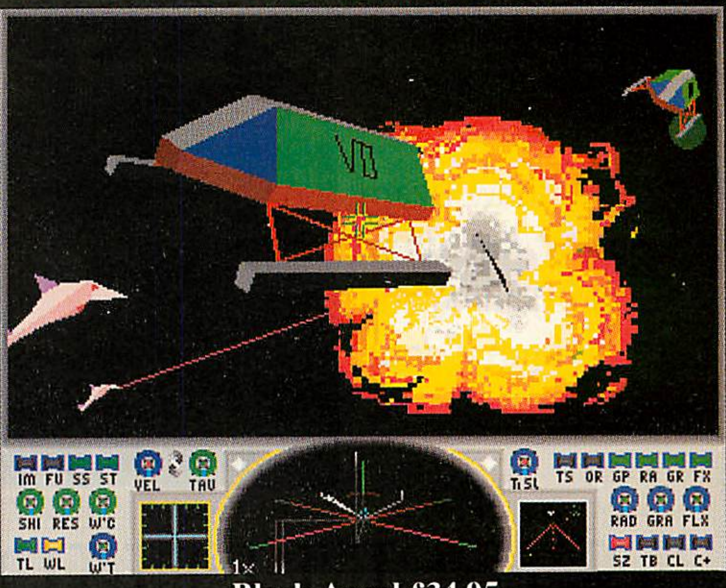
PRODUCED by The Fourth Dimension .... THE 32-bit Acorn Games SPECIALISTS

For All 32-bit RISC Machines





Dungeon £34.95 Requires 2Mb Minimum (Hopefully Oct)



Black Angel £34.95

2 UNBEATABLE Special Offers !!

① Buy ANY 2 Products & Choose Another 1 FREE

It is the cheapest product which is free. You pay for the two most expensive ones.

② Buy ANY 3 Products & Choose Another 2 FREE

The cheapest two products are free. You pay for the three most expensive ones.

(The above unbeatable special offers include all products produced by The Fourth Dimension & Triple R Education)

MUST End.....24th December 1992

SPECIALIST Acorn 32-bit Software

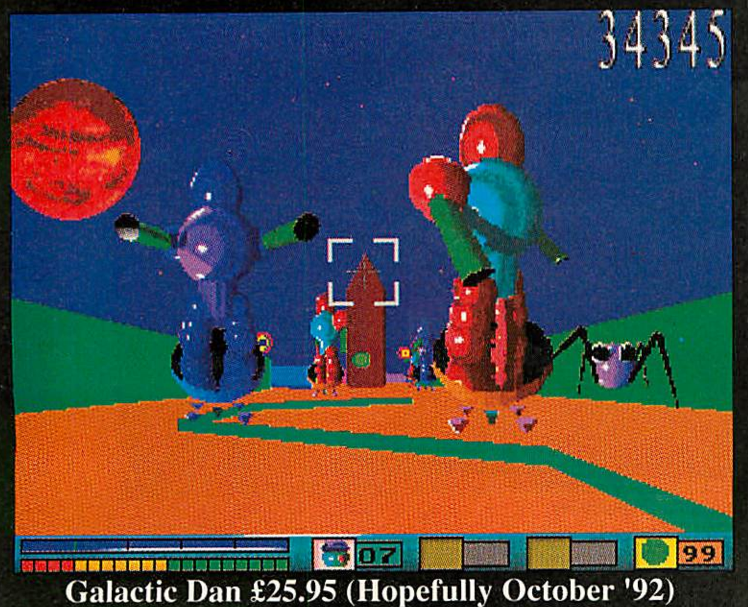
ALL of the software shown is available for the following 32-bit Acorn machines: all A3000s, A3010s, A3020s, A4000s, A5000s and the Archimedes 300 & 400 Series. Each game is the result of years of dedicated Acorn 32-bit programming. Our aim right from the very start of every game is to produce software which truly exploits 32-bit power. Furthermore, many also boast enhanced modes for both faster processors and extra RAM.

** Game titles followed by these symbols require 2Mb minimum with RISC OS 3. (This is due to the applications in-built into this new operating system).

HOW TO ORDER

Simply send us a quick letter or give us a ring telling us the software you would like, your name and address, and payment via cheque, postal order or ACCESS or VISA card details. Prices include VAT and postage & packing is free in the UK.

The 4th Dimension, 1 Percy Street, Sheffield, S3 8AU.
Telephone (0742) 769950 or 700661.



Galactic Dan £25.95 (Hopefully October '92)



Saloon Cars DELUXE £34.95 Extra Courses £19.95





Mathew Tizard looks at the future of Arc gaming and finds it good

THE FUTURE IS **HERE**

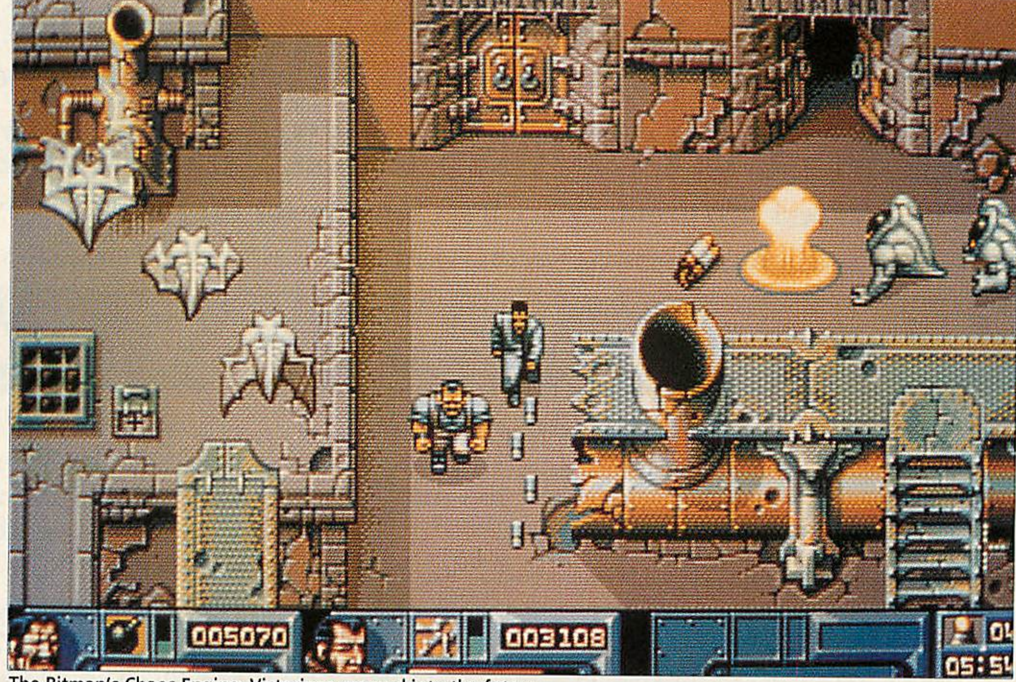
The sheer speed and ability of the newest Acorn machines make them ideal launchpads for games. Although there are many great homegrown games on the Arc, the widest range of groovey titles is available for the less powerful but more widely-owned machines, notably the 16-bit computers such as the ST and Amiga. Since these machines are technically inferior to the Arc, there shouldn't be any problem in converting the games from over there to over here.

Well, it seems the time is now ripe for doing just that: porting over the cream of the 16-bit games to the Arc. Independent companies have started obtaining the rights to all the most popular games, and bringing them to us.

Krisalis has already published a wide selection of high quality conversions, and is now converting one game a month. According to Krisalis, 'If Acorn users want to play the games which are household names, then that's what we'll give them.' Other companies have started to follow this lead. Some of them aren't just doing 'line for line' conversions, but are adding new features that cater for the Arc's capabilities, while of course preserving the flavour of the originals.

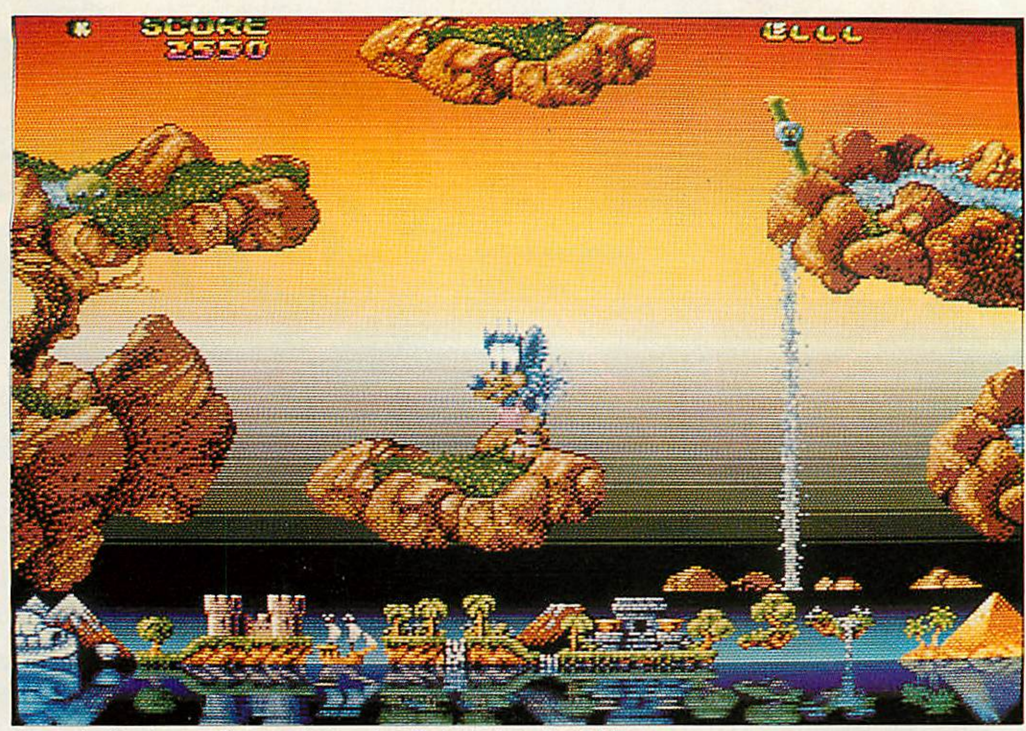
Thanks to licensing agreements, in future the Arc versions of many of the big 16-bit titles will come out simultaneously or soon after the other versions. This all means that soon the Arc will have its very own catalogue of bang up to date, top-notch games.

The production of games in the 16-bit world is no longer centred around programmers who are expected to be Jacks (or Jills) of all trades. Nowadays a production team is divided into groups of designers, artists and coders who can specialise in their fields. One such bunch, who I reckon you'll be hearing a lot



The Bitmap's Chaos Engine: Victoriana warped into the future


Xenon 2: definitive scroller



Renegade, the Bitmaps' flatmate, is throwing Fire 'n' Ice into the 32-bit arena

more from in the future, is the Bitmap Brothers.

The Bitmaps have made a highly respected name for themselves in 16-bit games. The original three: Mike Montgomery, Steve Kelley and Eric Matthews, formed the Bitmaps in 1986 and produced *Xenon*, the much-imitated vertical scroller, after looking around arcades and working out exactly which elements they liked in a shoot 'em up.

'We write the games *we* would want to play', says Eric, which is a very commendable philosophy. What started as a one-off release has since blossomed into an extremely successful games stable. I went to see them in their HQ (which they share with another games house, Renegade) in the heart of London's Docklands.

There's no such thing as an average Bitmaps fan. They range from young children to a 72-year old man. The hallmarks of a Bitmap project are originality, lovingly-crafted 16-colour graphics and specially written music by bands like Bomb The Bass and Betty Boo. They are well aware of the spark which is injected when two people play a game together. Their two-player games are 'stuff to fall out with your friends over'.

Their most recent game, *The Chaos Engine*, is an eerie fusion of past and present. Its mixture of arcade action and role playing is typical of the Bitmaps' creative style. 'We're interesting in breaking some of the conventions which exist in computer games.' they told me. 'There shouldn't *be* rigid barriers between say a shoot 'em up and a puzzle-solver. What we want to do is distill the best from each genre and incorporate those elements into our own games.'

The Bitmaps have a contemptuous attitude to software piracy and actively encourage pirates to turn themselves in. Mike says: 'An example was when we added code to make sections of pirate copies of *Gods* incredibly hard to play. Then we had fun taking calls from the pirates, all asking why it was so hard. We just wrote down their addresses.'

Something that often happens when Bitmap games are ported onto other machines in Japan is that the little messages in the source-code which the original programmers leave each other when working on a project tend to get translated into Japanese along with the rest of the text. 'Some of the literal translations of the more colourful English expressions are pretty funny!'

So what of the future? It took some ten years for the humble Beeb to be stretched to its limits with *Exile*. This gives me the feeling that with such a leap in processing power and graphical ability, the potential is there for a game of mind-blowing proportions. At the moment, though, it looks as though we're stuck with taking the best from other micros. We can live with that.

BITMAP GAMES

- XENON 1&2: The definitive scrolling shoot 'em ups.
- SPEEDBALL 1&2: A 'future-sport' which is a cross between five-a-side, hockey, rugby and rollerball. You can tailor your players' character attributes (for example, aggressiveness or intelligence) which leads to tangible changes in gameplay. There's a tension between greed & the desire to win, as you have to collect money as you play. No rules, in fact you get points for fouls and tackles!
- CADAVER/THE PAYOFF: Isometric arcade adventures. This 'corner-of-the-room' perspective is the best way to do 3D scenes without messing about with vector graphics. 'I suppose you could say *Cadaver* is like an Ultimate game gone 16-bit,' says Eric.
- GODS: Innovative platform game already out for the Arc from Krisalis.
- MAGIC POCKETS: In which you play 'Bit Kid', whose secret weapons are the tornados, clouds and snow he keeps in his pockets.
- THE CHAOS ENGINE: A fusion of action and role play, with a Victorian/futuristic atmosphere to it known as 'steam-punk'. The graphics for this were being polished off in a corner of the room as we spoke. The Arc version will be out within two or three months of the other versions.

COMING SOON FROM . . .

SORTED SOFTWARE: *The Chaos Engine* and *Magic Pockets*, with more planned.
KRYSALIS: *Cadaver*, *The Payoff*, *Speedball 2*, *Hero Quest*, *Populous 2*, *Powermonger*, *Battle Chess* (complete with moving chessmen), *Sim Earth*, *Sim Ant*, *Pinball Dreams*, *Lord of the Rings 1 & 2*, *A-Train*
IMAGE SYSTEMS: *Sensible Soccer* (from Renegade. Currently number one in the 16-bit charts), *Cybernoids 1 and 2* (similar to *Psycastria* on the Beeb), *Storm Lord* and *Deliverance* (spells 'n' wizards), *Black Hornet* and *Blazing Thunder* (vertical shoot 'em ups), *Future Bike* (uses some amazing new sprite blit/scale/rotate routines, making mincemeat of other machines), *Interchange* (The thinking person's *Gauntlet . . .*)
COIN AGE: *Paradroid 2000* (*Paradroid 90*, written for the Amiga, received rave previews but unreleased due to publishing problems. It has now undergone a facelift for the Arc). Six more conversions in the pipeline.
SOFTWARE 42: *Xenon 2*. Plans for future conversions.
ALSO ON THEIR WAY . . . (under negotiation & under wraps) *Wing Commanders 1* and 2 (superior 3D space battle games, using mapped sprites), *Jimmy White's Whirlwind Snooker* (seamless 3D snooker simulation), *Fire 'n' Ice* (from Renegade), Vikings, SAS.



A fast moving, futuristic 3D vector graphics adventure!

You must explore a futuristic Earth, which is now inhabited by criminals and strange mutant life-forms, and find a way to leave the planet.

Superfast 3D vector graphics give the game a perfect futuristic feel. Buildings, moving humans and aliens are plentiful.

Atmospheric sound effects and music, specially written for use in Ixion.

Easy to use control panel. All main control is via the mouse, the keyboard is used only for typing commands on the special computer terminals.

Movement about the landscape is extremely simple, giving the game instant appeal.

Extra weaponary, vehicles, some friendly characters, computer terminals, lifts and even a secret room are just a few of the special features to be found on the Ixion landscape.

Ixion features an original combination of perplexing puzzles and fast action. You must use your mental skills to search buildings and solve tricky problems, but you will also need to shoot at enemies, and dodge their firepower! This unique style of gameplay has never been seen before on the Arc, and will keep you addicted right to the end!

There has been a lack of quality beat-em-up games for the Archimedes...

RAW POWER

until now!

Raw Power is the first, combining top quality gameplay and graphics with some fast and furious action. With a vast range of fighting moves, weapons and enemies, Raw Power gives you a chance to inflict real grevious bodily harm! Features include:

- Super smooth, 50 frames per second scrolling
- A simultaneous two player mode - play with or against a friend!
- Stunning 256 colour graphics
- Breathtaking music and sound effects!
- Loads of varied levels, which offer a tough challenge to keep you addicted!
- Massive end-of-level bad dudes to fight!

"Raw Power is super slick, super smooth and super fast, with super muscle bound graphics - buy it now!" The Author



Software 42
109 Ferry Road
Hullbridge
Essex
SS5 6EL

Please make cheques payable to "Software 42".

All prices are fully inclusive.
Please ask for site licence details.

Price List

Games

Ixion	£25	Futuristic 3D Adventure
Raw Power	£25	Stunning Beat-Em-Up
WolfPack	£20	Flight Simulation

Utilities

ArcFS 2	£20	Fast, Efficient File Compressor
ArcFS 2 Upgrade	£12	Please Return Original Disc
Utilities Disc 1	£15	Landbuild, 3D Fractal Landscapes
Utilities Disc 2	£15	DTP and Programmers Utilities
Utilities Disc 3	£15	Professional Label Printer

Draw File Clip Art

Clip Art Disc 1	£8.50	Electronics
Clip Art Disc 2	£8.50	Animals and Birds
Clip Art Disc 3	£8.50	People



WHAT'S YOUR GAME, THEN?

Leisure psychologist Sarah Burns delves deep into your mind-set to assess what sort of games player you really are

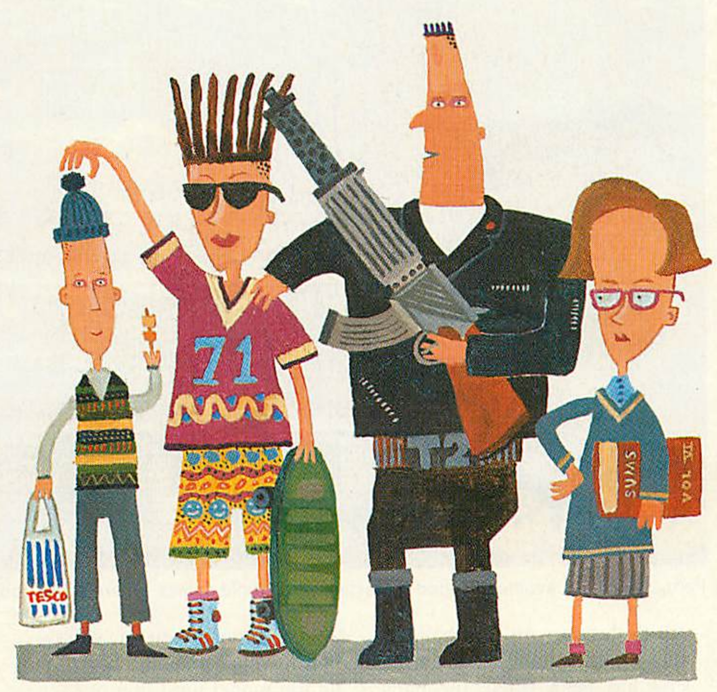
Ever wondered what you see in a certain game? Take part in our quiz and find the message that lies behind the play...

1 Which outfit would you choose to wear to play your favourite game?
a: Combat uniform/Uzi 9mm
b: Bobble hat, pullover, anorak
c: Clarks' Commandos and glasses (one arm of which is held on by Elastoplast)
d: Hawaiian shirt, acid-splash knee-length shorts

2 You return home from a smashing evening at your local Archimedes User Group, only to find that you've lost your door key and alas, there's nobody in. Do you:
a: Attack the door with a machete and a selection of dynamite that you always carry in your rucksack
b: Panic, cry, then phone all your friends
c: Settle for scaling the wall, using rope unthreaded from a hammock you purchased on your travels through Asia, and eventually enter through an open upstairs window
d: Put a nearby bucket on your head and jump through the window

3 Which other magazines do you read?
a: Amateur Boxing Scene, The Martial Arts Expert, Guns & Ammunition, Shoot! and Motorsport
b: Gibbons Stamp Monthly, Everybody Loves Dogs, Cross stitching, Angling Times
c: The Economist, New Statesman & Society, The New Scientist
d: World of Ten Pin, Vicky in the Wild West, Super Bike, People's Friend

4 You've been queueing for ages to see your favourite member of the *BAU* team at the Acorn User Show when someone pushes in front of you. What do you do?
a: Administer a near-fatal beating
b: Pull your bobble hat down over your face
c: Consider their movement as an infringement of your basic human rights and involve them in a lengthy conversation about fundamental democracy.
d: Apologise; well you're used to it, everybody pushes you around . . .



5 Boogying on down at the disco you clock a hot chick/ guy and decide to approach them. What's your chat-up line?
a: Hey babe, d'ya wanna wrestle with my frame?
b: You wouldn't dream of approaching a member of the opposite sex
c: As far as you're concerned, chat-up lines are ideologically unsound
d: Forget talking, you impress them with that excellent Bill 'n' Ted dance routine

6 Your computer is under attack by the lethal virus, Pantsmania. How do you get rid of it?
a: Karate chop the keyboard, ninja leap over the monitor and then attack it from behind
b: You'll have to spend all day consulting *BAU*, various software companies, manuals, magazines and a number of bulletin boards
c: Use a virus killer which you have personally designed for times of crisis
d: Erm, why would anyone want to erase the material on your hard disc anyway?

7 You bump into a Lemming; what's your gut reaction?
a: Viciously refuse to do anything violent to it, whatsoever
b: You're frightened, you've never seen anybody with green hair before
c: Explain that its suicidal anomie and alienation are simply the fault of society
d: Ask it where the dungarees are from; you've wanted a pair for ages

NOW TOT UP YOUR SCORES . . .

Mostly a: There's nothing like a good punch up, eh? You're aggressive, mean and so macho; flex those muscles. Fast cars excite you, fights delight you. A real hero.

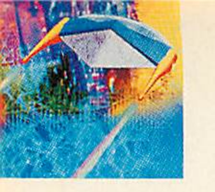
One with a slightly destructive streak, you're happiest playing games that allow you to show off your power and prowess, where you can wield almighty power like *Hostages, Last Ninja, Grievous Bodily 'Arm, Lotus Turbo Esprit* and probably *Manchester United Europe*. Games such as *All-in Boxing* and *Quest for Gold* are also big favourites; you can impress others with your athleticism. And that feeling of exhilaration when you win.

Mostly b: Wimp games; *Pac-Mania, The Wimp Game, Bambuzle, Tetris, Loopz, Shangai, Solitaire, Freddy's Folly*. There's no escaping the fact; you're a bit of a wimp. The games you play demand some thinking – well you're certainly not stupid – but they lack personality or any real substance. Totally wet.

Shanghai, Loopz, Pacmania to name but a few and, of course, *The Wimp Game*. You have an uncontrollable passion for pineapple and cheese on sticks and, of course, the computer is the love of your life.

Mostly c: No problem is too difficult for your brain; you love a good think and no intellectual challenge is too great. A philosopher and master thinker, you can beat the computer at chess, probably have a beard and, like, *big* hair, possibly long. *Dreadnoughts, Omar Sharif's Bridge, Waterloo, Pandora's Box*. Make no further utterance.

Mostly d: Erm, not a lot of activity among that grey matter of yours; a little bit silly aren't you? You'd like to play games like *Lotus Turbo Esprit* or *MiG-29*, but you're just not coordinated enough to get very far, so you're happiest with the silliness of games like *Lemmings* and *Boogie Buggy*. You're on the same wavelength as *Top Banana*: *James Pond* is cool, *Pesky Muskrats* is groovy.



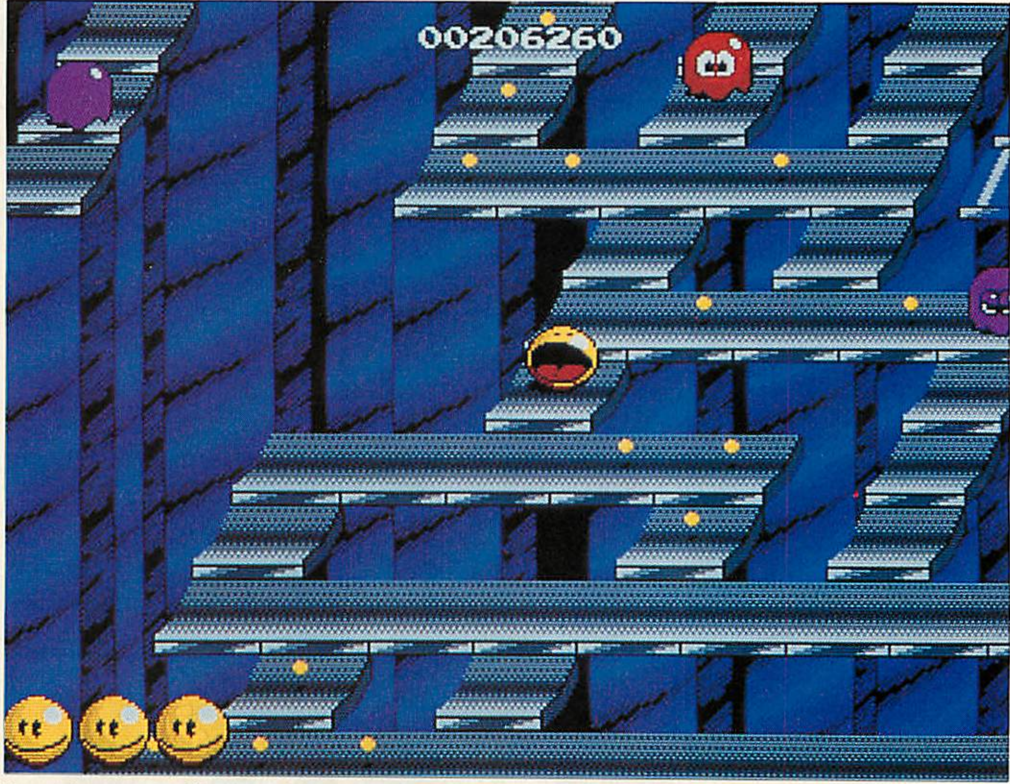
DON'T BE A **GEEK!**

Games aren't child's play. Sarah Burns offers a guide to the perplexed

It's bad enough as a beginner not being able to do flash things on the computer, but being hopeless at games too; well, that's totally depressing.

Which games do you start with? Some are too fast, others too complicated? To help you on your way to super-games player status, we've chosen four: *Lemmings*, *Bambuzle*, *Pacmania* and *Bug Hunter*.

They're all brilliant games and perfectly suitable for beginners, but don't be fooled, that doesn't mean they're easy. And if you're still not sure after trying these out, what game you're best suited to, try our quiz on page 25.

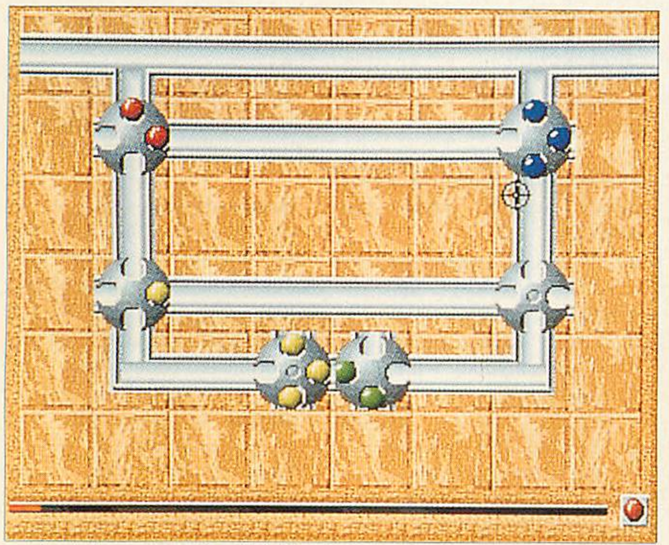


Pacmania means avoiding rotund characters with stupid names; where's the problem?

BAMBUZLE

A bit tricky to explain, but, according to the read me text on *Bambuzle*, it's an arcade/puzzle game with a difference, to make your brain tick, and believe me it will. To be honest, it isn't the easiest of games to play but it's totally addictive and very easy to get into. A quick word of advice, with a theme tune that would not be out of place on *Saturday Superstore* it's probably wise to opt for no sound.

A number of tunnels, connected by cogs, run vertically and horizontally across the screen. The object is simply to fill each cog with four balls of the same colour. When the cog has been filled, the balls within that cog will disappear and a bullet hole is made in the centre. It's not necessary to refill a completed cog but, if you do, your score will benefit tremendously.



Bambuzle is a matter of cogs, balls, tiles . . . and common sense

A red, blue, green or yellow ball travels across the horizontal top tunnel until you make a space in a cog directly below, which it will then fall into. You turn the cogs using Adjust on the mouse. The idea is to jiggle the balls around the screen, using Select to push them along the tunnels, until a cog is completed. If you push a ball into another ball, then they will both disappear.

In the bottom right-hand corner is a box that shows what colour ball will come out next and there's bonus points for completing the screen within a certain time.

Level one is very straightforward, though you may not complete it at first. However, it's a good introduction to the game and one that should get you hooked. Levels become more complex after that. Coloured tiles under some tunnels will change the colour of the ball travelling across it. So a yellow ball crossing a red tile will change to red. Broken coloured tiles will only allow the same coloured ball to move across it.

Forward thinking is a definite requirement and it's something that you will automatically start to do after a few turns.

The backgrounds are a bit odd, sort of horrid really, but you'll be so absorbed in the bits, bobs and cogs you probably won't notice it anyway. Once you've got the hang of it, there'll be no stopping you.

PACMANIA

Everyone can play *Pacman*. It's the perfect beginners' game and *Pacmania* is exactly the same. You, the fat bouncing yellow man, have to eat all the little yellow balls with Inky, Blinky, Clyde, Sue and Funky (where did they get those names?) hot on your heels. Dodge the ghosts because if they catch you, it's goodbye to one of your precious lives.

As with most games the z

key moves you left, x right but p is up and l is down. Bounce with the space bar. If you own a joystick you can play with this, otherwise there is an option that allows you to change the control keys.

Dotted around the screen are four power pills which turn your ghost enemies blue for a short while, their powers are removed and they're scared of you. Revenge is sweet; it's your only chance to eat them, picking up extra points.

There are 22 levels in all. Each level takes place in a different 3D world and has different bonus items that you must grab. A little green ball gives you super-speed, a red ball will leave the ghosts blue for slightly longer.

There's also ice-cream and toffees, strawberries and bananas that will help to increase your score.

You start the game with four lives, but as your score builds up you're rewarded with extra ones. If your score is impressive enough, when you've lost all your lives, there is a chance to start the game again at the level you finished on.

A truly excellent game. Beware though, don't believe the box's claim to 'a snappy upbeat tune'.

LEMMINGS

For those that don't know, Lemmings are little green-haired men in dungarees that look like a groovy vegetarian version of Ronald McDonald. There's no doubt about it, they're damn cute but incredibly stupid.

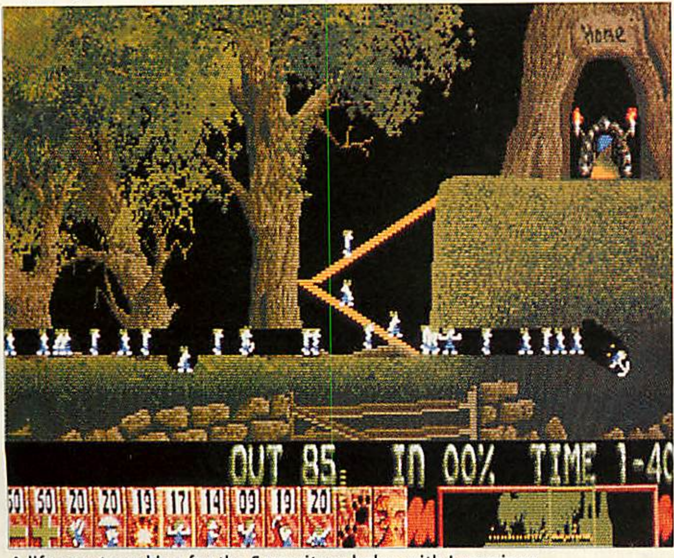
The object of the game is to save the kamikaze lemmings from a series of potentially fatal environments. They're released, with a huge whoopee, from a hatch at the top of the screen and you have to guide them, by creating a path to the exit.

Lemmings are so utterly lacking in any kind of basic intelligence that they'll follow each other through any hazard, even if it results in death. So you must give some lemmings a skill that will help them and their mates cope, survive and eventually escape. It's quite simple, really; you just have to be a good, caring person under that bluff exterior.

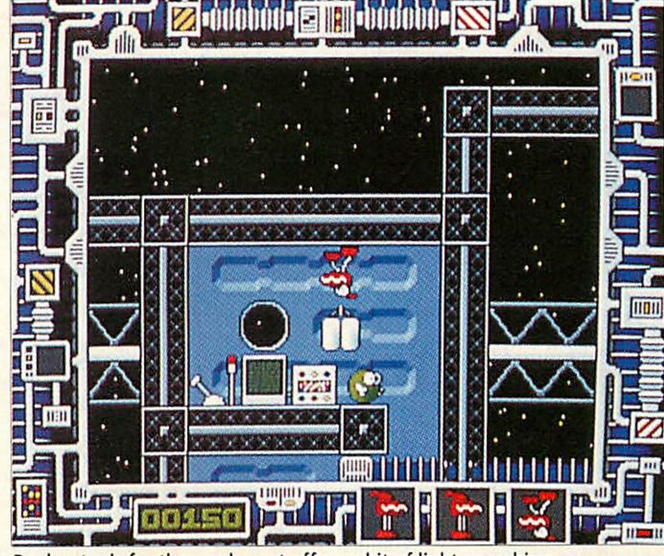
At the bottom of the screen is a series of icons offering a choice of skill. Using the mouse, you can click on any one of them and pass the skill onto a chosen – and sometimes unfortunate – lemming, again by clicking on the poor creature with the mouse.

The lemmings' skills are varied; there's a miner who will dig through anything until a passage is made; a climber who will scale any height; a builder that lays bricks upwards until he runs out; a digger that digs down sideways; a floater who sails through the air aided by an umbrella; a stopper who will prevent other lemmings getting past and a walking time bomb who, explodes blowing up everything and anything around him.

Should you need time to think of a strategy, click on the set of paws which will pause



A life spent working for the Samaritans helps with Lemmings



Bughunter is for those who get off on a bit of light squashing

(get it?) the game until you want to return to it. And if it looks like a no-hope situation there's the brilliant nuke option where the whole lot will just blow up.

Think quickly about which skill is necessary to make the journey safely. As soon as one lemming is home and dry, you can increase the rate at which the remaining little ones fall through the hatch.

To complete a level, a certain percentage of lemmings have to be saved. If you succeed, a wonderfully right-on message appears.

If you fail to get all the lemmings out within the time limit, you just try again without having to return to the previous level. There's no such thing as losing as you don't have any lives. And if you remember the password for each level, the next time you play, you can start where you left off.

There's 99 levels of fun here, all with equally disturbing musical accompaniment. It's an incredibly silly game. You'll love it.

BUGHUNTER

Your character, the *Bughunter*, is one of the most uselessly skilled creatures ever. All he can do is walk up walls and across the ceiling, aided by super-suction feet.

He's not exactly a superhero thats for sure, yet somehow he must kill the bug aliens that are hovering above earth with intent to destroy. How can he save the planet without any weapons or special powers? Simple, it's death by squashing; he drops various objects, that are conveniently lying around, on the bugs.

An assortment of bugs features in this game, from your average wiggly worm to some that look not dissimilar to walking boiled eggs. These bugs do not chase you or even attempt to kill you, but hang loose on each level waiting for you to accidentally walk into them and turning on all those important switches that you've just turned off.

The game takes place on the alien bugs' spaceships. There are three in all and three level of difficulty for each ship. Objects that you pick up are bits that you always find on board such vessels. Most importantly, you must pull every switch and lever lying around as these slow down and eventually stop the ship, which you must then blow up.

Controlling Bughunter couldn't be easier. Z will move him left and x to the right. SHIFT makes him either jump, pick up an object or drop the object. You can not jump if you're carrying an object or jump and drop an object, so you will need to think about how to place objects where you can then pick them up again.

Bughunter demands thinking and will take time before you feel that you're getting anywhere. Me? I can't get beyond level one but don't let that dishearten you. It's a brilliantly addictive game. And yet another one with a truly great theme tune. Not!

Software for all Acorn Computer Users!

Excellent mail order service for Archimedes, BBC B, Master 128, Master Compact & Electron

This month's Special highlight!

Ideal Christmas present for young people!

UNUSED BBC B COMPUTERS for only **£176.25!**
(This price includes DFS, a word processor, & Speech system!)
BBC B Computer & 40/80t disc drive only £229.95!

New Releases

Oh No! More Lemmings 19.95
Omar Sharif's Bridge 29.99
Lotus Turbo Challenge 2 .... 25.99
Populous 29.99

FREE CARRIAGE on these titles!

Plus!

10 out of 10 Maths	24.95
2067 BC	17.95
Artworks	189.95
Cable News	169.95
Eureka	139.83
ExcellonDRILL	69.95
Express	56.95
Gribbly's Day Out	23.95
Krisalis Collection	29.99
Pendown Plus	92.93
Play It Again Sam	21.95
Techwriter	279.95
Tiles	17.95

Printers

Panasonic KX-P1081	9pin dot matrix	£159.95
Panasonic KX-P1170	9pin dot matrix	£169.95
Panasonic 1124i	24pin dot matrix	£254.95
Seikosha 1900 Plus	9pin dot matrix	£121.95
Seikosha SP2400	9pin dot matrix	£159.95
Seikosha SL92	24pin dot matrix	£229.95

Prices include VAT, cable & delivery!
(Delivery free UK mainland only, excluding Scottish Highlands)
** Full specifcations available on request **

BBC & Electron

Send for our Catalogue!

	BBC/Ele tape	B-Disc	Cpct
E-Type	6.50	9.75	-
Elite	9.95	11.95	15.95
Exile	9.95	11.95	15.95
Fun School 3 (0-5 yrs) (BBC only)	9.95	13.95	-
Fun School 3 (5-7 yrs) (BBC only)	9.95	13.95	-
Fun School 3 (7+ yrs) (BBC only)	9.95	13.95	-
Holed Out	8.50	9.75	10.50
Nevryon	-	9.75	10.50
Play it Again Sam 1 to 10 (Each)	6.95	8.95	10.50
Play it Again Sam 11 to 14 (Each)	7.95	9.95	11.95
Play it Again Sam 15 & 16 (Each)	9.95	11.95	15.95
Play It Again Sam 17	-	12.95	16.95
Sim City	9.95	11.95	15.95
Superior Collection 1 (BBC only)	6.95	8.95	10.50
Superior Collection 2 (BBC only)	6.95	8.95	10.50
Superior Colection 3 (Ele only)	6.95	-	-

AND MUCH MUCH MORE!

For details of our complete range for BBC series, Electron or Master Compact, send for our free catalogue!

Arch/A3000/A5000

	SRP	SALE
Arcade Games		
Aggressor	19.95	16.95
Bobby Blockhead	19.95	16.95
Black Angel	34.95	32.95
Break 147 & Superpool	34.95	32.95
Cataclysm	25.95	24.95
Chuck Rock	25.99	25.99
Elite	39.95	39.95
Galactic Dan	25.95	24.95
GODS	25.99	25.99
Grievous Bodily 'ARM	25.95	24.95
James Pond	25.99	25.99
Karma - The Flight Trainer	24.99	23.95
Lemmings	25.99	25.99
Loopz	24.99	17.50
Nebulus	25.99	25.99
Nevryon 2	25.95	24.95
Oh No! More Lemmings	19.95	19.95
Pesky Muskrats	25.99	23.95
S.W.I.V.	25.95	25.95
The Last Ninja	24.95	22.95
Zelanites The Onslaught	19.95	17.95
"Mind" Games		
Chess 3D	24.95	19.95
Cyber Chess	49.95	46.95
Omar Sharif's Bridge	29.99	29.99
Simulation Games		
Air Supremacy	24.95	21.95
Chequered Flag	24.95	21.95
Chocks Away Compendium	39.95	36.95
Chopper Force	29.95	26.95
Dreadnoughts	34.95	31.95
Flight Simulator Toolkit	44.95	41.95
Populous	29.99	29.99
Saloon Cars Deluxe	34.95	32.95
Lotus Turbo Challenge 2	25.99	25.99
Waterloo	24.95	21.95
Adventure Games		
Enter the Realm	25.95	24.95
Legend of the Lost Temple	24.95	21.95
Pandora's Box	25.95	24.95
Sport Games		
Microdrive II	29.75	26.95
Quest for Gold	25.99	25.99
Brian Clough's Football	19.95	15.95
Compendiums		
Krisalis Collection	29.99	29.99
Real McCoy 1, 2, or 3 (each)	29.95	27.95

Many special offers on games new and old! Details in our FREE catalogue!

	SRP	SALE
Leisure/Various		
Rhapsody 2	61.95	51.95
Score Draw	61.95	54.95
Speech	19.95	15.95
Titler	149.95	134.95
Tracker	49.95	49.95
Touch-Type (New Typing Tutor)	51.04	45.95
Utilities		
Desktop Assembler	175.08	149.95
Graph Box Professional	151.58	129.95
Illusionist	99.95	89.95
Investigator Rel 2	27.95	27.95
PC Emulator V1.8	116.33	116.33
Pipedream 4	230.30	199.95
Render Bender 2	99.95	89.95
Shape FX	11.75	11.75
Word Processors		
Easiword 2	69.33	61.95
Educational		
10 out of 10 Maths	25.95	23.95
10 out of 10 English	25.95	23.95
Best Four Maths Programs	52.88	44.95

	SRP	SALE
Best Four Language Programs	52.88	44.95
Draw, Paint & Plot	46.95	41.95
First Words & Pictures	25.85	21.95
Freddy Teddy's Adventure	19.95	17.95
Fun School 3 0-5/5-7/7-11 yrs - each	24.99	21.95
Fun School 4 0-5/5-7/7-11 yrs - each	24.99	21.95
House of Numbers (6-13yrs)	25.85	21.95
Linkword French	46.95	41.95
Linkword German	46.95	41.95
Linkword Spanish	46.95	41.95
Little Red Riding Hood	17.95	15.95
Letters & Pictures (6-8yrs)	23.50	19.95
Mega Maths (A Level)	25.22	23.95
Micro English (8yrs - GCSE)	25.22	23.95
Micro French (8yrs - GCSE)	25.22	23.95
Micro German (8yrs - GCSE)	25.22	23.95
Micro Maths (11yrs - GCSE)	25.22	23.95
Numbers/Pictures (4-6+yrs)	23.50	19.95
Pirate	27.03	24.95
Polyominoes	35.19	31.95
Primary Maths (3-12yrs)	25.22	23.95
Puncman 1&2 (7-13+)	23.50	19.95
Puncman 3&4 (8-14+)	23.50	19.95
Puncman 5, 6, & 7 (8-15+)	23.50	19.95
Sesame St. Number Count	19.99	17.95
Shylock Gnomes	21.74	19.95
Spelling Week By Wk (6-14)	25.85	21.95
The Playground	35.19	32.95
The Puddle & the Wardrobe	35.19	31.95
TinyLogo/Tiny Draw (4-9yrs)	35.19	31.95
TV Fun & Games	22.95	19.95

Full range of Educational software available! Please ask for our FREE catalogue!

	SRP	SALE
Communications		
ArcComm V2	63.45	63.45
Arcterm 7	79.95	67.95
Hearsay 2	88.13	79.35
Desktop Publishing		
Clip Art Set 1 or 2 (Each)	35.19	29.95
Good Impression	31.67	28.50
First Impression	35.19	31.95
Impression 2	198.57	145.95
Impression Junior	105.69	81.95
Ovation	116.33	91.95
Peripherals & hardware		
Joystick Intfce V2.4 (Leading Edge)	39.95	39.95
Clares Micro Mouse	32.00	27.50
Graphics Enhancer (300/400)	264.99	264.99
Sound Samp. & Midi Card	93.99	93.99
Instructional Videos		
Up & Running	14.95	13.95
Text Processing	14.95	13.95
Data Handling	14.95	13.95
Art/Graphics	14.95	13.95

Special Joystick Packs!

(Quickshot 3 Turbo)

Pack One Joystick Interface V2.4 and 1 X Quickshot 3 Turbo **£49.95**
Pack Two Joystick Interface V2.4 and 2 X Quickshot 3 Turbo **£59.95**

(Superpro Auto)

Pack Three Joystick Interface V2.4 & 1 X Superpro Auto joystick **£51.95**
Pack Four Joystick Interface V2.4 and 2 X Superpro Auto **£61.95**



Now A5000 compatible!

(SRP = Suggested Retail Price) All prices include VAT @ 17.5%

All our prices INCLUDE VAT - remember this when comparing prices!

CUT AU/12/92

Please send me your FREE CATALOGUE!

Name ______________________

Address ______________________

____

____

Postcode ______________________

☐ Archimedes A3000/A5000 ☐ BBC B/B+/Master 128/Cpct ☐ Electron

---

Software Bargains & Mercury Games
Dept AUC2, C/O Northwood House, North Street, LEEDS LS7 2AA
TEL: 0532 436300 FAX: 0532 423289

* Access/Visa Welcome
* Please add 95p P&P (Europe £2.50, Outside Europe £4.50)
* All prices include VAT @ 17.5%
* Goods despatched within 48 hrs, (subject to availability)

* Educational discount of 30% off SRP (not Sale price) available on most Archimedes software; Offical Order No. or school headed notepaper required - minimum order value £30.00 for invoicing, otherwise cheque with order.

(Prices are correct at the time of going to press, E&OE)



ARMCHAIR ACTION

Sam Greenhill celebrates the lazy person's route to physical prowess

So many things in life tap the old energy supply. Just think how much sweat it takes to play golf or kick a football; the elbow grease needed to pot a snooker ball and the sheer effort required to drive around Brands Hatch or fly a night-time sortie in a Russian-made jet. So you knuckle under and take the TV option, but then you become a coach potato and start watching *El Dorado*.

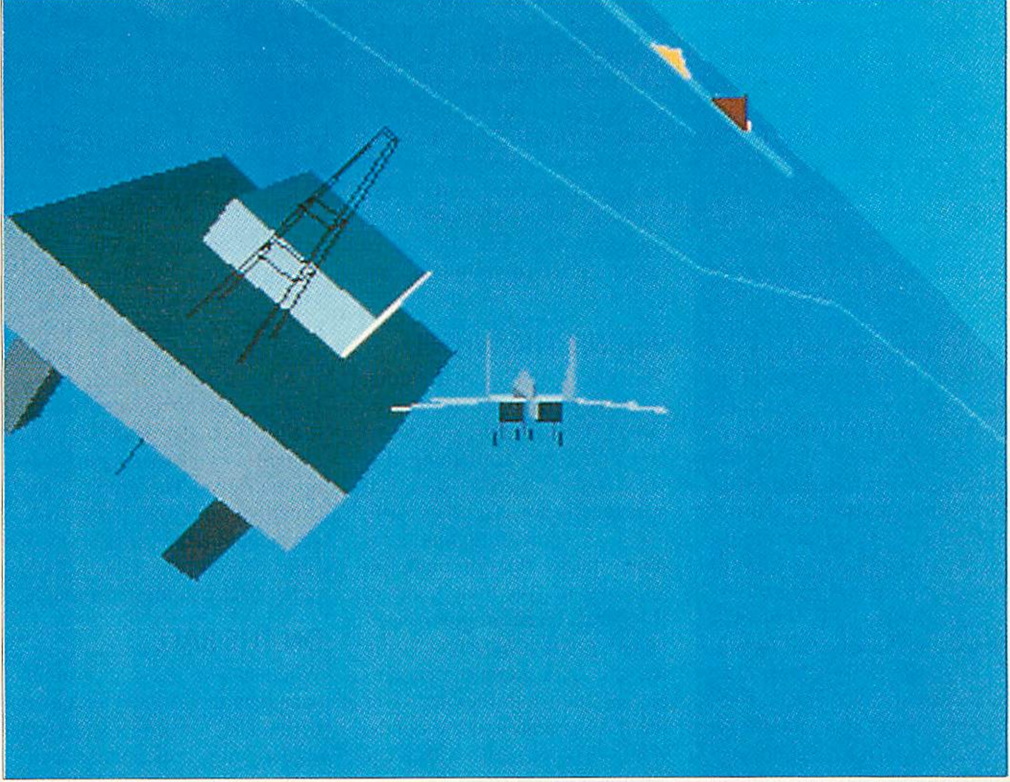
But there is an alternative, and you don't need to leave the comfort of your armchair to find it: the action game. You can experience the thrill of Brands Hatch, the joy of a hole-in-one and even the terror of playing chicken with a four-engine Fokker cargo plane without moving more than a couple of finger muscles.

INTO THE BLUE

If the idea of slicing through the ether at Mach 2 with a heat-seeking missile on your tail appeals to you, or if the prospect of chugging through war-torn skies in a Sopwith Camel – pursued with determination by an evil little Fokker – is your cup of tea, then your armchair can be more dangerous than you thought.

Flight sims are many people's favourite type of game because they often combine action and strategy with a convincing movement of flight and feeling of control. If it is accuracy you demand, then there are four flight sims which were all produced by the same team of ex-British Aerospace engineers. *Interdictor* and *Interdictor 2* are available from Clares and place you in the cockpit of a modern jet fighter equipped with a 30mm cannon, 36 air-to-ground rockets and four heat-seeking missiles.

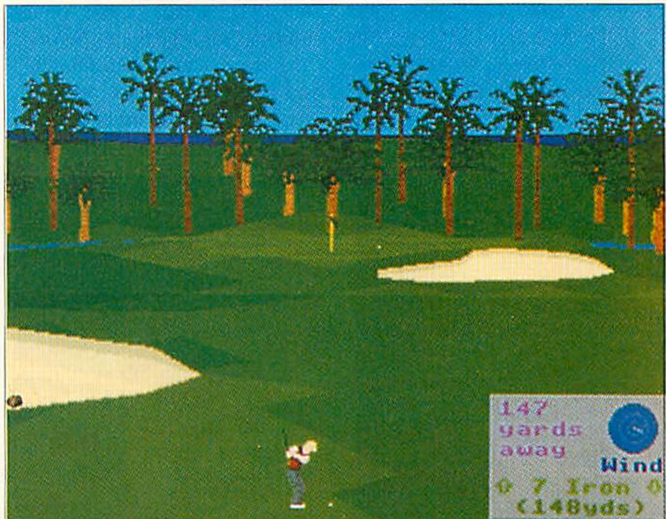
A daunting array of flight control, radar and weapon indicators fill the instrument panel and the head-up display gives the pilot some idea how straight – or not – the plane is flying. Or falling!



Offshore action in your MiG-29

The sequel, *Interdictor 2*, has more features and a better mission scenario than its predecessor. *MiG 29 Fulcrum* and *MiG-29 Super Fulcrum*, from Domark, are based on the same theme but the jet is more fun to fly, with so-called 'smart' missiles and outside views of the Russian-designed jet. Of the four, *MiG-29 Fulcrum* is probably the best, *Interdictor 2* a close second.

At the other end of the flight sim scale is *Chocks Away*, better described as a fun game than a simulator that tracks every particle to the nearest molecular-unit and, in some places, it gets downright amusing as you strive to land your Tiger Moth on an aircraft carrier to refuel! But *Chocks Away* is excellent, especialy the *Extra Missions* version in which you can view the battle from outside your Moth, from a distance away, from an enemy plane, a boat, a train, or even 'the phantom plane'! Best of all, *Chocks Away* can be played with another person simultaneously, and flights may even be recorded on the 'black box' and replayed just up to the point before you hit the bridge, or whatever, when real-time control can then be



Microdrive: ultimately realistic

restored. If you're not bothered about precision trajectories or modern technology then *Chocks Away* is an excellent flying game. It is also the easiest to play.

TEEING OFF

No aliens. No Commies. No guns. Just green grass, plenty of trees and blue lakes. Thwack! And a selection of clubs. Playing golf on the computer instead of taking a healthy walk around a real course may be harder to justify than playing an aircraft simulator (it is more difficult to sneak into a Russian airbase and steal a MiG than to play golf) but who cares?

Armchair golf can be very entertaining, though you could well get bored playing for too long on your own. Fear not, for all of the three golf games available have scope for up to four players to compete together, stroke or match play.

Holed Out from The Fourth Dimension is a cheerful effort with good aesthetic qualities and satisfying sound effects, but it suffers from a lack of true 3D with its absence of any real contours, and *Superior Golf*, from Superior Software, has the same problem. The game which has the most right to call itself a simulator is *MicroDrive* from Cambridge International Software, where there are hills for the ball to roll down and even pits – for the ball to roll down!

In *MicroDrive* you use the mouse to control the golfer's arm: a click too early and the ball will hook and a click too late will produce a slice. *Holed Out* and *Superior Golf* both have this feature but the shots are gauged using a 'power meter' on the screen which, doesn't really make them any less enjoyable to play, merely not as ultimately realistic as *MicroDrive*.

The main advantage of *Superior Golf* is that a hole and course designer come built in, along with four world famous courses, making it the cheapest option if you take into account the cost of extra courses for the other golf games. *Holed Out* is also cheap but you pay extra for the course designer and more courses, while *MicroDrive* is probably the best but at a higher price and, again, the course designer is extra.

BEHIND THE WHEEL

To some people a car is a thing that goes from A to B. To others it is a baby to be loved and cared for, something that weekends were designed specifically for. To others still, a car is something that goes much faster than it ought to and makes you look good in Raybans, Even in your armchair. *Lotus Challenge*, from Krisalis, is a game thatencompasses such a principle. Over the hills and around the bends, it is a driving game with a car designed to be driven.

If, on the other hand, definition two strikes more of a familiar chord then *Saloon Cars* from The Fourth Dimension is probably right up your street. In this, you embark on a series of weekend races at famous circuits around the country and beyond, racing your Astra – to begin with – and winning money to spend on your motor.



Your Saloon Cars is what weekends were designed for

After a while, better tyres, brakes, gearboxes and eventually a better car can be bought as you work your way up the ranks. The graphics are excellent and the game is a very convincing simulation of 'life behind the wheel'. It's rather tricky to master, though.

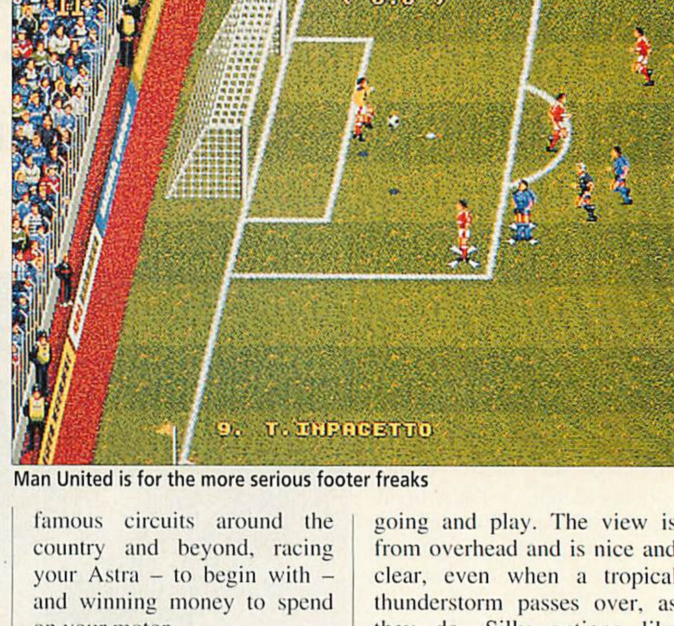
ON THE BALL

Whether you kick it around, beat it with a raquet or tap it with a cue, a ball is a spherical object that scores points. Armchair ball games are almost as much fun as the real thing.

POOL: Pool games are are a bit thin on the ground but this matters not a bit, for *Break 147 & Superpool* from The Fourth Dimension is clearly the answer to every closet snooker and pool player's prayers. It is graphically excellent and adequately fast, and the sound is very nearly perfect. It is quite feasible to use the game as practice for the real thing.

SQUASH: There is only one; *Jahingar Khan's World Championship Squash* from Krisalis combines a player-training section with action play.

FOOTBALL: For simple, straightforward football, *Arcade Soccer* from The Fourth Dimension seems to be the one beginners go for and it's certainly the easiest to get going and play. The view is from overhead and is nice and clear, even when a tropical thunderstorm passes over, as they do. Silly options like adjusting the spin on the ball to make it fly in circles add a certain novelty value to the game.



Man United is for the more serious footer freaks

Manchester United and *Manchester United Europe*, from Krisalis Software is for the more serious footer-freaks and adds a team management aspect to the football action. The view of the pitch is from the side and video footage of a real match is played every time you score a goal.

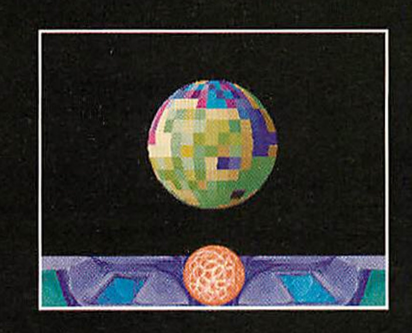
HUMAN RACES

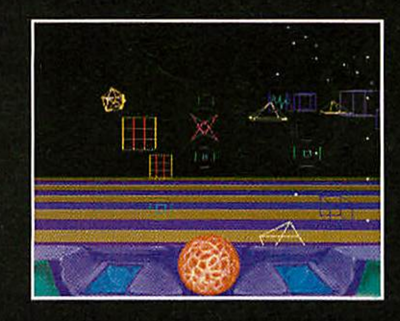
It has always been a bit of a mystery why anybody enjoys athletic simulations at all, since the aggregate skill required to play the game boils down to what has affectionately become known as 'keyboard bashing' or, more recently 'mouse-wiggling'. The speed, height, distance or time achieved all rely ultimately on how quickly you can alternate between keypresses or move the mouse.

The Olympics from The Fourth Dimension was the first sporty game to come out on the Arc and, unfortunately, it shows, so unless you particularly want to try your hand at canoeing, it's a bit of a non-starter. *Quest For Gold*, recently released by Krisalis and Acorn, is the best on offer but, despite providing a comprehensive team training and management section, it has a limited life once the events have been mastered.

ALDEBARAN









ALDEBARAN is a comprehensive game mixing Action and Strategy. Several completely different scenes including :

- full screen 3D action scene with concave and convex objects using lightening and realtime texture mapping on some of them. Also featuring extremely realistic looking water, under which you can even fly. Graphics enhanced by a colour dithering routine.
- Simulation of a 12 planets solar system with realtime shaded spheres, animated at full speed.
- 50Hz wireframe action scene.

Entirely written in assembler, the game fits on a single 800k disk thanks to powerfull compression routines.
Fully mouse driven - no keys to learn !!

Completely RiscOS compatible with Desktop interface.
Requires 1 Mb. Easy installation on harddisc.









£34.90 (incl. VAT + P&P)
DM 94.90 (inkl. MWSt)
available december '92



For further information or orders, please contact:

Evolution Trading AG, Industriestr. 12, CH-3178 Bösigen, Switzerland
tel: ++41 31 747 65 31, fax: ++41 31 747 65 96

GREAT OFFERS FROM LENDAC

ACORN ELECTRON PACKS:	
ELECTRON COMPUTER:	£82.00
Incl. 5 Software Packs	
ELECTRON CASSETTE PACK:	£107.00
-Electron	
-Recorder	
-5 Software Packs	
ELECTRON PLUS 1 PACK:	£124.00
ELECTRON W. P. PACK:	£165.00
ACORN PLUS 1 INTERFACE:	£46.00
ELECTRON SOFTWARE FROM	£4.09
ELECTRON GAMES PACK	£12.40
5 games on tape	
ELECTRON ED. PACK:	£15.66
5 ED. Packs on Tape	

BBC SOFTWARE - TAPE:	
GAMES PACK 1:	£13.18
GAMES PACK 2:	£13.18
ED. PACK 1	£15.66
ED. PACK 2	£15.66

BBC SOFTWARE - TAPEcont.	
COMBO PACK 1:	£18.14
COMBO PACK 2:	£18.14
ELITE TAPE:	£9.05
ELITE DISK:	£10.70

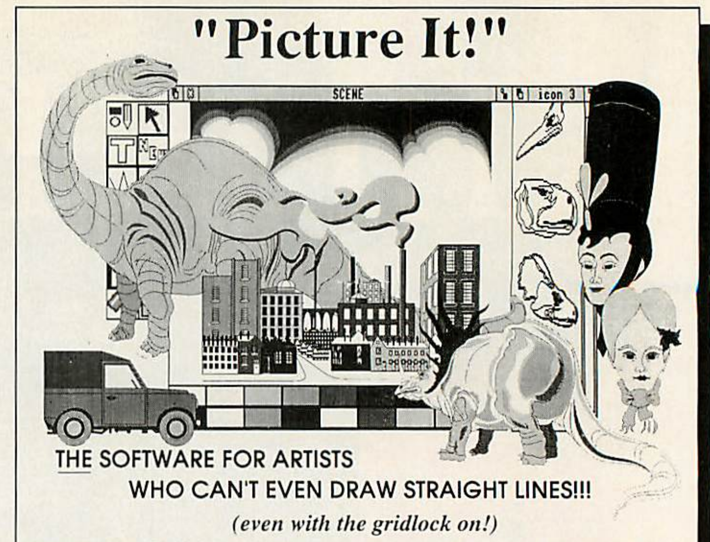
OTHER PACKS:	
PRESTEL ADAPTOR:	£23.95
IEEE 4B8 INTERFACE:	£40.50
TORCH GRADUATE:	£326.45
OMNI READER:	£239.67
32016 PROCESSOR	£289.26
280 PROCESSOR	£48.76
ATARI 520ST:	£164.46
ATARI 520ST:	£371.00
-Colour System	

*All prices exclude VAT and are in Irish Punts. UK VAT @ 17.5% payable at point of delivery to UK customers. Irish VAT @ 21% payable at point of purchase to Irish cusomers. Prices above do not include carriage. Please send cheque with order to above address. All hardware is refurbished and carries a twelve month warranty. Carriage: Software £3.00 Each Hardware Unit £15.00 Allow 14 days for delivery.

Lendac also supply the complete range of Acorn Equipment.
Contact: CONN LOY or NICOLA DONNELLY if you have any queries.

LENDAC DATA SYSTEMS LTD.
UNIT 31, IDA CENTRE
PEARSE STREET, DUBLIN 2.
TEL:(010 3531) 776133
FAX: (010 3531) 710135

"Picture It!"



THE SOFTWARE FOR ARTISTS
WHO CAN'T EVEN DRAW STRAIGHT LINES!!!

(even with the gridlock on!)

Create superb, highly effective scenes with this powerful, easy-to-use picture-building software – and animate them very easily and quickly.

A wide variety of topic disks of *!Draw* objects are available, ranging from Buildings to Dinosaurs.

Prices (excluding VAT):
Master pack (master program, animation disk and Identikit faces picture library) £29.95
Topic disks ....each £8.50

SPECIAL OFFER: FREE Christmas Topic Disk with all orders received before December 10th.

Contact us for more information or a **FREE** Demo disk.

APPIAN WAY SOFTWARE LTD.
Old Co-operative Buildings, Langley Park,
Durham DH7 9XE
Tel. & Fax: (091) 373 1389



You don your 'Cybertronic Suit' and become the..............

CYBORG :-

Ready to do Battle with the powerful Cybernaught and his Creatures!!!!

Cyborg is a ***'Unique Game'*** for any Acorn Range of RISC OS 32 Bit computers including the A3000 and A5000! Combining the very best features of a *'Fast Action*

Arcade - style game'

With the *Enthralling Atmosphere* of a

'Fully Illustrated Adventure'!

CYBORG pushes out the boundaries of 'Game Playing' on Acorn Machines, it is not Tw halves of one Game But.......**Two Games in One!!!**

Huge Scenes of an Alien Planet - ***256 Colour Mode*** with full ***Parallax Scrolling*** and ***Animation*** (at 50 frames per.sec.with Arm3, or 25 with Arm2), Vast Hordes of Strange beings to face and Various Weapons to Blast them with!

Over 4.5 Megabytes of Graphics

- The Arcade section of the game has the need for very fast reflexes as you view the 'strange alien world' through the visor of your suit. There are various ***Weapons*** to pick up and use via W.A.S.P. - aimed with your Mouse guided 'Laser Sight'.There are ***Puzzles*** to solve, and ***Strange Beings*** to confront, from ***Dragons & Bears - to - Robots & Tanks!***

Your enemies will turn to face you before they fire.But don't wait till you see the white (or blue or red) of their eyes,because you will be vaporised before you can blink.All you have to do is find the Crystals to power your Ship, dispose of any enemies without killing any 'Friendly Aliens' in the process, and then 'get passed or destroy the ***Cybernaught***!!

- The Adventure contains ***25 professionally hand drawn screens in 256 colours*** that is over 2Mbyte.! and can be played ***in sequence....... or separately from the Arcade*** section depending on your preference. There are 3 Levels to choose from....***Easy, Standard or Advanced*** so even the novice can try the easy to play Adventure.There is very little Typi with the Advanced ALPS system which is mainly Mouse driven, using Icons and words picked off the screen using a 'Copy and Paste' method.

Three Discs of Highly Compressed Action,with Authentic Sound Effects, Animation and Music

Programmed by Philip Hawthorne (of 'Creator') and Graphics by the same Artist who produced the Cover and ***A PRIZE*** of the ***Original Airbrush Artwork*** for the first Two CYBORGS to complete the quest in its' entirety!

RRP £25.95 *(inc VA*

Alpine Software, PO Box 25, Portadown, Craigavon, BT63 5UT Tel: 0762 342510



MENTAL MATTERS

Computer games expand your mind, says Dave Lawrence, so try some of these

If you're not one for mindlessly shooting everything that appears within your crosshairs; think that motor racing should carry a government health warning or run screaming at the sight of some cutesie little character bounding along to some 'catchy' tune then perhaps the realm of mind games is for you.

Of course, there's no hard and fast distinction between these games and physical jerks – let's face it, all you need for any game is a working brain and thorough joystick/keyboard protocol – however, we've sorted out a few programs that, we think, primarily exercise the grey matter.

JIGSAW FEELINGS

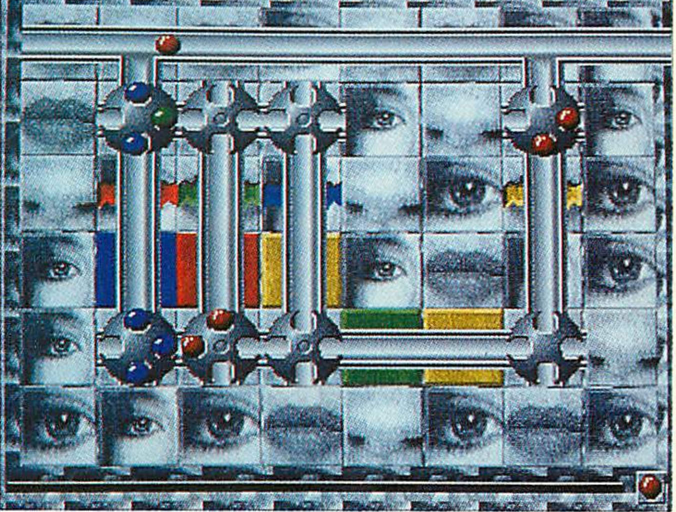
If you're a *Tetris* fan, then puzzle games might appeal. Many are based on similar themes; matching shapes or colours, fitting jigsaw-like pieces together or solving logical puzzles.

As far as I know, there is no official Arc version of *Tetris,* but numerous versions can be found floating around various bulletin boards – even one that is mapped onto the side of a sphere and bounces around the screen.

Tactic is like *Tetris* but uses colours not shapes, whereas *Square Root* is a cross between *Tetris* and a jigsaw. *PipeMania* verges on the jigsawoid and involves building a pipeline to channel deadly flooz. A close cousin to this is *Loopz,* where the idea is to construct closed loops on a board to clear the levels. And one of the favourite games in our office is *Bambuzle,* where coloured balls whizz along pipes and must be guided into slotted wheels.

Revelation, on the latest Krysalis, compilation disc is from roughly the same veins, but with a safe-breaking theme behind it. All of games are a race against the clock to clear progressively harder levels.

Repton has now made his way on to the Archimedes in his third incarnation, complete with oodles of puzzle-packed levels and a sprite and level designer. One surprise success have been the two *BugHunters.* Nice simple games, but infuriatingly fun to play; unlike *Cartoon Line,* which is just infuriating. An excellently illustrated game with a good plot . . . but just too damned hard unless you are a truly dedicated person.


Bambuzle needs a lot of careful thought

My final game in this category is *Towel of Babel,* a sort of 3D-perspective *Repton,* with blocks to push, lifts to use and nasties to neutralise.

ON THE TABLE

Of course there's always cards, chess and the like. Sadly there is no Arc *Scrabble* as yet, but there *are* three chess games: *Cyber Chess, Chess 3D* and David Pilling's *Chess.*

For patient folk, there's the Acorn freebie *Patience* – an excellent game for zilch funds. There are many other PD patience games floating about, *Senior Wrangler* and *Cribbage* are my personal favourites.

If you're into paying money, *Mahjong Patience* is great, although the 'game' version leaves a lot to be desired. *Omar Sharif's Bridge* is also recommended for card players. And for those looking for a selection, you can still get hold of *Arcendium* featuring draughts, reversi, backgammon and 3D oxo.

ADVENTURESOME

Sadly, there are only a few really good adventure games around, and so a stimulating Arc adventure is a particularly precious commodity. One good place for a budding adventurist to start is with the Magnetic Scrolls catalogue. It is well worth the browse, especially with the Magnetic Windows environment the company has developed. These are excellent adventures with charming illustrations and witty text, so check out *The Pawn, Guild of Thieves, Jinxter, Fish!, Corruption* and *Wonderland.*

It is now possible to play all of the *Infocom* series of adventures by means of a PD application called *!Infocom,* so try to track it down if you can.

POWER PLAYS

Finally, if you are something of a megalomaniac, then try your hand at running a city with *Sim City.*

If this isn't enough to satisfy your power cravings, then full omnipotence can be granted with *Populous.* More down to earth people may like to investigate *Waterloo* and *Dreadnoughts,* both quite accurate military simulators.

If the trend towards greater sophistication in the rest of the games world prevails, there will be many more challenges around soon for the thinking gamester, so stay sharp.



Revelation: test your wits against the clock



THE PERFECT GAME

Put your imagination to the test and win a games bonanza

Consider your favourite game. Is it really perfect in every way? Are the meanies as mean as they could be, or are they a bit too meek and mild? How about the game scenario: is it a naff plot, or too complex to get to grips with? Could the graphics be improved? The sound? Do you like the characters?

The perfect game has yet to be designed, so here is your chance. We are giving you the opportunity to win more games than you can ever hope to master. They cover a rich variety of entertainment software, from arcade shoot-'em-ups to strategy adventures

You could be burning it up in a Lotus with the ultimate driving game from Krisalis, or playing God in the great power game, *Populous*. Perhaps you'll help sort out Alice's rabbit from her elbow in Virgin's *Wonderland*. How about a dog fight at Mach 2 with *Mig-29 Fulcrum* from Domark or a ground battle in WW2 with *Conqueror* from Superior Software.

Then there's *Guile*, the latest space adventure from new games house Dream Ltd, the laundry game, *Starch*, from Alien Images and even the first ever 32-bit game *Zarch* from Superior Software. And of course, it goes without saying, we've also got lots of *Lemmings*.

All these games and many more are sitting in our office, just waiting to be won by you.

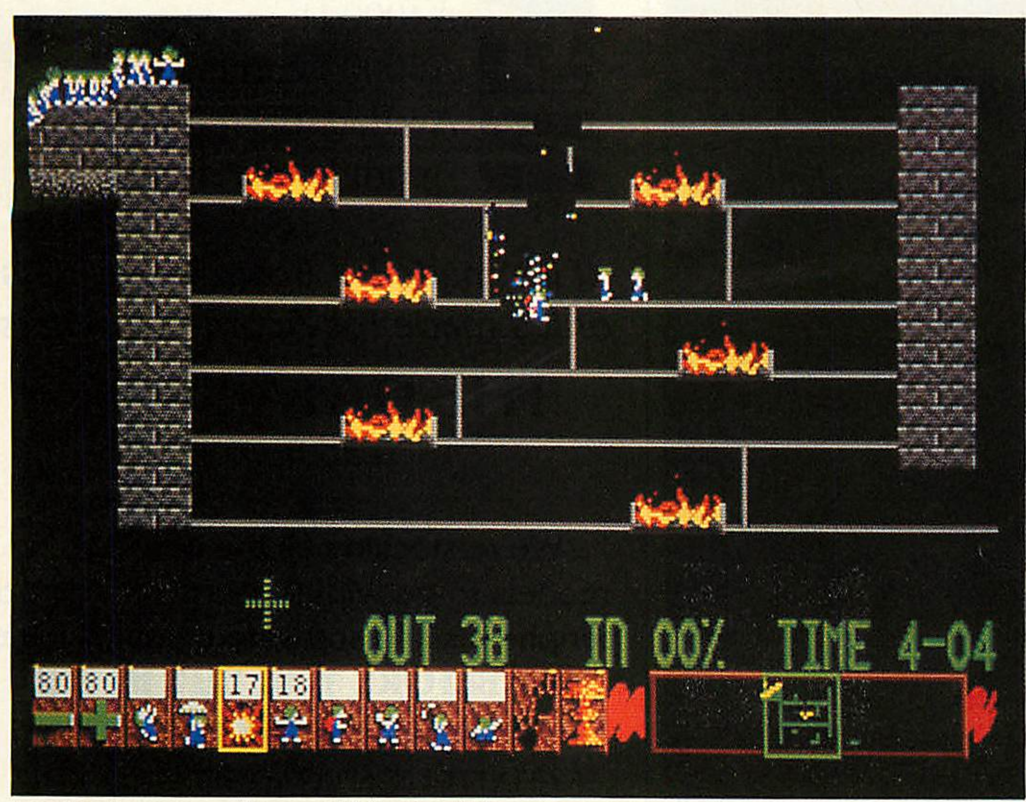
TO WIN

To enter, you will need to turn your hitherto undiscovered powers of imagination to the design of an exciting and original game. It must be one that makes good use of the 32-bit capabilities of the Acorn computer and puts the rest to shame. The entrant whose game design is judged to be the best will win all the brilliant games mentioned above and in the box opposite.

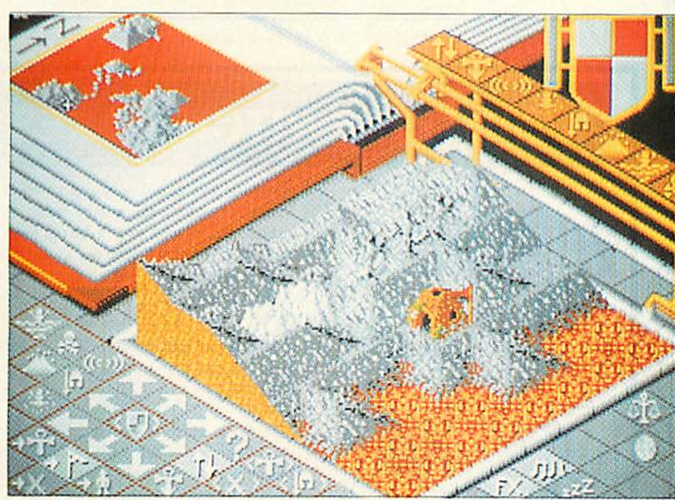
Talent spotters from the games industry will see the entries and who knows, the best ideas could end up on the best-seller shelves next year.

Putting together a modern computer game is rather like making a movie. Graphic artists team up with sound specialists, software engineers

ROBERT CLIFFORD



Lemmings: Can your game be more addictive than this?


Populous presents a classic challenge: running the universe

work with cartoon animators and project managers give a direction to the whole show. But first they need an idea and that's where you come in.

OVER TO YOU

A game needs an overall scenario, it needs a 'hero' (even golf games have a hero) and the hero needs an enemy (in some games, time is the enemy). More than anything else it needs to be addictive. Games such as *Tetris* have naff-all in the way of graphics but keep you up all night with that 'one more go' appeal.

You don't need to be a graphic artist, a sound technician or a musical genius to enter this competition, just come up with an idea that has good opportunities for graphics and sound and a plot with staying power. In your game it should be easy to get started, so that beginners have a chance and please try to avoid the biases of gender and age. Doses of humour do wonders for the best games – just think of the sadistic overtones of *Lemmings*.

TO ENTER

Present your idea of a game in no more than 500 words, including the plot and description of graphics and sound. You can be as imaginative as you like – if appropriate make up a storyboard with sketches. You must also state why you think your game would appeal to people. Try to imagine how a reviewer would respond to its features. And don't forget to give it a name.

The judges will be looking out for a game that will stop even the most apathetic passers-by and make them want to leap into the hot seat for a bash.

Fill in the form below and send it with your entry to: The Design A Game Competition, BBC Acorn User, 101 Bayham Street, London NW1 0AG. The closing date is Friday 29 January 1993.

WHAT YOU WIN

- Avon
- Fervour
- Lemmings
- Pipemania
- Guile
- Bughunter
- Mad professor Mariarti
- Terramex
- Revelation
- Mr Doo
- Apocalypse
- Gods
- Cyber Chess
- Bambuzle
- Oh No More Lemmings
- Last days of Doom
- E-Type
- Blitz
- Omar Sharif's Bridge
- Chocks Away
- Man United Europe
- Overload
- James Pond
- Trivial Pursuit
- Casino
- Zelanites
- MiG-29
- Arcade
- Lotus Turbo Challenge 2
- Quest for Gold
- Talisman
- Holed out Compendium
- Chess 3D
- Bughunter in Space
- Interdictor
- Eclipse
- SWIV
- Nebulus
- Eclipse
- Redshift
- Worldscape
- X-Fire
- 3D Construction set
- Acheton

ENTRY FORM

NAME ....

ADDRESS ....

.... PHONE ....

NAME OF GAME ....

Please remember that the judges decision is final. The competition may not be entered by members of Redwood Publishing or their families. The closing date for entries is January 31st 1993.



GAMES QUESTIONS AND ANSWERS

Q How much do games for Acorn 32-bit computers cost in general?

A **The simple answer is: the same as games cost on the Amiga. The cost of an Acorn game does vary, though, due to a number of factors, some of which are reasonable and some of which are definitely not.**

On the whole you can expect to pay around £25 for your average run-of-the-mill 32-bit game. The driving game *Lotus Turbo Challenge*, from Krisalis, for example, will set you back £25.99 if you purchase it mail order and most of the games from The Fourth Dimension are about the same price.

Games selling close to the £20 mark are generally reckoned by the publisher to be 'budget', in the sense that they wouldn't dare release them at full price. However, the prices of games that publishers regard as 'special' are beginning to creep towards the £30 or even the £35 mark; a bit worrying.

Compared, though, with Nintendo or Sega games that are mostly £40 and sometimes even £65, the Acorn world is still good value. The most expensive Acorn 32-bit game is *Cyber Chess* from The Fourth Dimension which retails at a staggering £49.99. Ironically, the cheapest game is probably *Chess* from David Pilling Software, a mere £5.99 . . .

Q Where are the best places to buy Acorn games?

A **The prevailing wisdom up till now seems to have favoured mail order for buying games which, apart from anything else, ultimately makes them that bit cheaper.**

But there is something to be said for walking into your local stockist and trying out the game for yourself before parting with the dosh and that is the way the tide is now turning. Most Acorn dealers stock at least the most popular games and branches of the John Lewis Partnership have Acorn games on the shelves.

A new chain of shops called Game is opening up, with 14 plush new stores already in place around the country, that sell all sorts of games from board *Monopoly* and *Pictionary* to *Lemmings* and *Lotus* on Acorn computer format. Finally, you can always buy the games directly from the publishers themselves. Look in *BBC Acorn User* for details of the current releases.



Is this what you need to play games on the plane?

Q Are Acorn games as good as, or better than, 16-bit games?

A **There are many games which fall into this category, but it is also worth looking at why some games don't. The Acorn Archimedes, the A3000 series and the A5000 are all much faster than any other home computer in the same price bracket but, unlike the 16-bit Amiga computer, they do not have a custom graphics and sound chip.**

The Amiga chip is designed to handle most of the computer's graphic and sound requirements quickly and effortlessly but the Acorn machines must rely on their own high speed to achieve the same ends. Consequently, games such as *SWIV*, which eventually slows down on the Amiga if too much is happening on the screen, work smoothly on the Acorn range.

All of Krisalis's games are conversions from famous labels such as Psygnosis, Maxis, Gremlin, Renegade, Electronic Arts or Core Design, and they are at least as good as the originals. The Fourth Dimension and most other games companies produce originals to begin with, many of which are just as addictive as 16-bit games.

Q Are there any games that work well on the Acorn A4 portable?

A **Firstly, it is important to remember that the A4 has exactly the same operating system and speed as the A5000 and is therefore technically able to run exactly the same software, including games. The problem is the LCD screen, which is only black and white and is quite slow to update itself, resulting in fatally blurred action in most games.**

Another problem is that only half the already small screen is used by most games so, as a general rule, the answer to the question is 'no'.

However, static games such as text adventures, *Mah Jong* or *Tiles* work fine and games where the background stays still and the characters move – as in *Mr Doo* – are playable too. *Break 147 & Superpool* is just about all right, except that it is often hard to distinguish the colours. Of course it is always possible to plug in a normal monitor.

Q What monitor should I use for playing games?

A **Your choice of monitor is an important one. For games playing you will need a monitor that will work in all screen modes, and a monitor that will go down to a frequency of 50Hz.**

Some monitors don't, particularly the PC VGA monitors such as the Taxan 795, or Eizo 9070. These monitors need a special software module installed so that the monitor will work in all Acorn modes, although in mode 12 or 15, for example, the picture will seem squashed, and the sound will be played back at a higher pitch.

Many problems with older games not running on these monitors can be cured by configuring the monitor type to 1, by pressing F12 and typing *CONFIGURE MONITORTYPE 1. There should be no problems with more recent monitors.

SENLAC Computing Limited

Art/Graphics
- Artworks....145.00
- Chameleon 2....42.00
- GraphBox Pro....115.00
- Illusionist....85.00
- Revelation 2....128.75
- smArt....54.00
- smArt Filer....38.00
- !Tracer....57.00
- Vector....89.00

Books
- First Impressions....31.00
- Good Impressions....29.00

Communications
- ArcComm 2....55.00
- ArcTerm 7....70.00

Databases
- Flexifile....133.00
- Pinpoint....99.00

Music
- Notate....59.00
- Rhapsody 2....55.00
- Score Draw....55.00
- VoxBox....55.00
- MIDI/Sampler (Econet)....75.00

Peripherals
- Vision B+W Digitiser....56.00
- ScanLight 256....220.00
- ScanLight Professional....640.00
- *with SCSI interface*....790.00

Don't pay until you receive your order! Cash–on–Delivery is available on orders up to £350 for only £2.50 extra.

Printers
- Epson LQ570....290.00
- LaserDirect HiRes 4....1050.00
- Swift-24e colour+driver....305.00

Spreadsheets
- Eureka!....128.75
- Pipedream 4....199.00
- Schema....113.00

- ShapeFX....9.75
- Glimpse....9.00
- Investigator 2.2....25.00
- Speech!....16.50

Consumables
- TDK Discs 3½" (box 10)
- DS/DD, 800k....11.50
- DS/HD, 1.6M (A5000)....15.00
- Virgin Discs 3½" (box 10)
- DS/DD, 800k....8.50
- DS/HD, 1.6M (A5000)....12.50

Games
- 2067BC....18.50
- Aggressor....17.80
- Bobby Blockhead....17.50

All prices include VAT, post & packing

- Break 147 & Superpool....29.95
- Chuck Rock....21.75
- Cyber Chess....43.00
- E-Type Compendium....20.75
- Gods....21.75
- Gribbly' Day Out....21.95
- Grievous Bodily 'Arm....20.75
- Holed Out Compendium....20.75
- Interdictor 2....29.95
- James Pond....21.75
- Krisalis Collection....25.25
- Lemmings....21.75
- Legend' Lost Temple....19.50
- Magnetic Scrolls Colln....28.95
- Man. Utd. Europe....21.75
- Master Break....16.50
- Nebulus....21.75
- Pesky Muskrats....21.95
- Provocator....16.95
- Quest for Gold....21.75
- Saloon Cars Deluxe....29.95
- SWIV....21.75
- The Real McCoy 1 or 2....24.95
- The Real McCoy 3....29.95
- Top Banana....21.25
- X-Fire....20.75

Bargain Box!
- Saloon Cars....15.00
- 3D Construction Kit....22.00
- Fax Pack....282.00
- Revelation 1....35.00
- EasiWriter....120.00
- Bambuzle....14.00
- ScanLight Junior *(A3000)*....90.00
- ShowPage *(not RiscOS 3)*....90.00
- Poster....60.00
- Elite....33.50
- Enter the Realm....18.50
- Cataclysm....18.50
- Pandora's Box....18.50
- Joystick Interface (S.Port)....32.00

Limited Stocks!

- Squirrel....150.00

Design
- Einstein....135.00

DTP/WP
- Impression 2....145.00
- Impression Junior....81.00
- Pendown Outline Fonts....19.95

Education
- Fun School 4 (0-5)....21.00
- Fun School 4 (5-7)....21.00
- Fun School 4 (7+)....21.00

Hypermedia
- Genesis 2....130.00
- Magpie....56.00

Utilities
- Articulate....19.00
- Compression....48.00
- Equasor....48.00
- FontFX....9.75

Cheques/postal orders should be made payable to SENLAC Computing Ltd. (AU1292)

P.O. Box 304
BRIGHTON, BN2 2TT

Don't forget to specify A3000/Archimedes/A5000! Please send a S.A.E for our current price list.

VAT Reg. No. 508 7594 16 — Company Registration No. 2277309

C.U. Electronics Ltd.

Computers, Upgrades & Electronics

65a Middle Hillgate, Stockport SK1 3EH
Tel: 061 476 0576. Fax: 061 477 2361

CHRISTMAS SPECIAL

Add a Hard Drive to your A3000

44Mb Internal only £219

other capacities available, call for details

061 476 0576

Prices exclude VAT + delivery
OPEN 9-5.30 MON–FRI

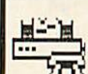
NEW

Archimedes Software

Gives you room to expand!

SparkFS

- SparkFS is a new compressed filing system that lets you fit more on your discs. Programs work as normal, but files take up less space.
- Files can be stored individually not in easy to damage archives and there are no confusing duplicate disc drive icons to master.
- Reads ARJ, ArcFS, SEA/PKarc, PackdDir, Spark, Zoo, Zip, LZH, Tar, Packit, Stuffit and Compactor archive files.
- Writes SEA/PKarc, Tar, Zip and Spark archive files. Zip files can be used on other machines and retain attributes.
- Modular design means you only need to load pieces you want. Scrap files can be in RAM or on disc and won't fragment memory
- ***SparkFS with manual and case is £23.96 inclusive.***
(Upgrades, owners of Spark and ArcFS, can deduct £5.99 each)



ArcFAX - Class 2 Fax modem package
Send and receive faxes from the desktop using a Fax modem. Received faxes can be saved as sprites. Faxes sent by printing in the usual way. Script language, phone directory, scheduling, image processing.
ArcFAX with manual and case £23.96 inclusive.



Disc 2 - MicroSpell 3.XX New Desktop Spell checker
Check files, check text in icons, continuous spell check whilst you type, display and correct last error. Edit dictionary. Multiple dictionaries. Fast. 200,000 words. Display closest match in dictionary to word being typed and complete with a key press or mouse click. Good for poor typists.
(Upgrades, owners of MicroSpell 1.XX and 2.XX can upgrade for free)



Disc 35 Trace/D2Font - Banish those jaggy blues!
Trace is a program for converting Sprites into Draw files. D2Font, takes Draw files and produces outline fonts suitable for use with Draw and DTP programs. Examples of Trace and D2Font included.



Disc 7 - Chess Program for The Archimedes.
A Chess program that takes full advantage of RISC OS, installing itself on the icon bar and running on the desktop in a window. Risc User said: *"Chess is an absolute bargain...same level it always beat Micro offering"*

Discs £5.99 each inclusive. Buy four claim one free!
David Pilling, P.O. Box 22, Thornton Cleveleys, Blackpool. FY5 1LR.
Free Air Mail delivery on overseas orders. Extensive range of other Archimedes software available (programmers tools, games, utilities, art), please send for free list.



TMJ Computer Software

39a, Station Rd, Desborough, Northants NN14 2RL
Orders and Enquiries: 0536 762713
Order Line Only: 0536 760807
Online BBS Darkhaven: 0604 413716 (24hrs)

Access

What You See Is What You Pay

VISA

2607 BC	15.50	MIG 29 Super Fulcrum	32.00	Compression	41.00
3D Construction Kit	45.00	Nevryon	18.00	**Educational**	
Arcticulate	22.00	NEBULUS (NEW)	22.00	Fun School 2 (All Ages)	17.00
Bambuzle	17.00	PC Emulator	114.00	Fun School 3 (All Ages)	22.00
Blitz	20.00	Pacmania	17.00	Fun School 4 (All Ages)	22.00
Break 147 & Superpool	30.00	Pandora's Box	22.00	Let's Spell at Home	21.00
Chocks Away	22.00	Peskey Muskrats	23.00	Let's Spell at the Shops	21.00
Chocks Away Extra	18.00	Plat it Again Sam 1(Archie V.)	23.00	**Hardware**	
Chocks Away Comp.	34.50	Quest for Gold	23.00	Arc/A3000 Game Contrl	37.50
Chess 3D	17.00	Repton 3	17.00	Serial Port Interface	27.00
Compression	50.00	Speech	17.00	A5000 Jostick Interface	38.00
Chopper Force	25.50	Schema	114.00	**3.5 inch disc boxes**	
Chuck Rock	22.00	Superior Golf	17.00	100 Capacity	11.00
CYBER CHESS (NEW)	43.50	SALOON CARS DELUX	30.00	**Printer Ribbons**	
Dreadnoughts	34.00	SALOON CARS Courses	18.00	KXP1080,1081,&1180	4.50
Add on	15.00	The Real McCoy 1,2,3. (ea)	26.00	STAR NL 10/NX 10	5.00
ELITE (Gold Edition)	38.00	TILES (NEW)	18.00	STAR LC10 & NX1000	4.50
Enter The Realm	22.00	Waterloo	22.00	STAR LC10 Colour	6.50
Flight Simulator Tool Kit	39.00	Zelanites	20.00	STAR LC200 Mono	4.50
Gribblies Day Out	23.00	X-Fire	22.00	Colour	13.75
Home Accounts	40.00	**Music Packages**		Citizen 120D /Swift 24/24E	4.50
Hostages	17.00	Rhapsody 2	53.00	Citizen Colour 9/24/24e 224	14.00
Interdictor 2	30.00	**Art Packages**		Epson LQ 4/500/550/850	4.50
James Pond	23.00	Atelier	90.00	Epson LX80	1.50
LEMMINGS	23.00	Render Bender 2	113.00	H/P 500 Double Caps. Cart.	24.00
LOTUS Turbo Esprit NEW	23.00	Tracer	55.00	Single Caps. Cart.	15.00
Last NINJA	23.00	Clip Art 1 or 2	30.00	**Dust Covers**	
KARMA	23.00	Euclid RISC-OS	59.00	A3000 (Keyboard only)	7.00
Manchester United Football	22.00	Arctist	22.00	A3000 & Monitor	10.00
Manchester United in Europe	22.00	Illusionist	90.00	Archimedes 2pc	10.00
Microdrive Extra Courses	13.00	**DTP**		**Odds and Ends**	
Microdrive World Edition	26.00	Impression II	161.00	Mouse mats	3.00
Master Break	17.00	Impression Junior	88.00	3.5in Disc Head Cleaners	3.50

SPECIAL OFFER BOX

POPULOUS	£27.00
Oh No! More LEMMINGS	£18.00
Krysalius Compilation	£27.00
Lotus Turbo Challenge	£23.00
Omar Sarif's bridge	£27.00
Galactic Dan	£23.

Discs!
3.5 inch.............. 13 for £7.50

A3000 Upgrades
1 MEG £50.00
4 MEG £160.00

All prices include VAT and P&P
Access and Visa Accepted
Open Mon-Fri 9.30am - 12.30, 1.30pm - 6.30
Saturdays 9.30am - 12.30

Club A3000 Computer Show NOVEMBER 15 at Mill Hill School,The Ridgeway, Mill Hill, London.



GAMES DIRECTORY

Find your favourite game in the BBC Acorn User directory

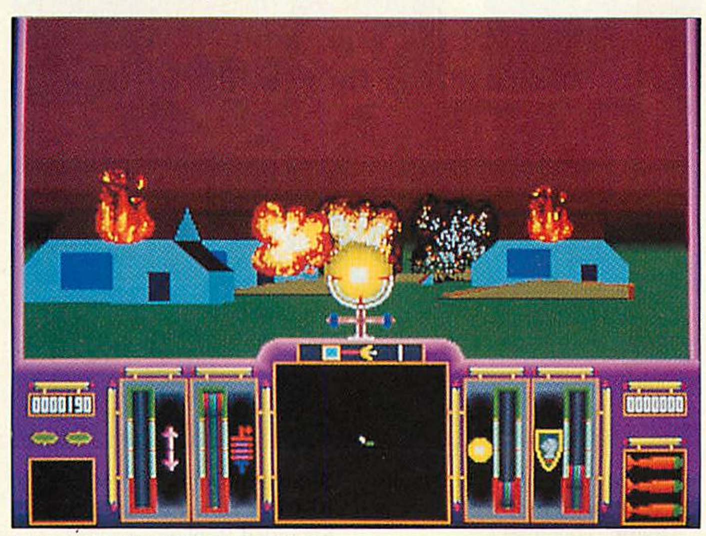
Games marked with a star have been reviewed within BAU and are recommended

ARCADE ACTION

2067BC Oregan Systems
3D Construction Set Domark
Alerion Alien Images
Alien Invasion Alien Images
All-in Boxing Alien Images
Apocalypse* The Fourth Dimension
Arcade Games Creator Alpine Software
Arcade-3 Compilation Clares
Arcade Soccer* The Fourth Dimension
Arc Pinball Shibumi Software
Ballarena Eterna
Battletank Minerva Software
Black Angel The Fourth Dimension
Blaston Eterna
Blitz* Arxe Systems
Blowpipe Leading Edge
Boogie Buggie The Fourth Dimension
Bouncer RTFM
Bubble Fair Eterna
Chequered Flag Cambridge International Software
Chocks Away* The Fourth Dimension
Chocks Away Extra Missions* The Fourth Dimension
Chopper Force The Fourth Dimension
Colony Rescue Alien Images
Confusion Cambridge International Software
Dominate RTFM
Drop Ship The Fourth Dimension
E-Type* The Fourth Dimension
Family Favourites Minerva
Fine Racer Eterna
Fireball Cambridge International Software
Fireball II* Cambridge International Software
Freddy's Folly Minerva
Globdule Image Systems
Grievous Bodily 'ARM The Fourth Dimension
Hostages* Superior Software
Inertia The Fourth Dimension
Ixion Software 42



Top Banana: still wacky after all this time



Carry on blasting with Apocalypse

Jahangar Khan World Championship Squash Krisalis Software
Jet Fighter Minerva
Lotus Challenge* Krisalis Software
Lotus Turbo Esprit* Krisalis
Kaptain Konflikt Calderglen Computers
Kerbang Eterna
Missile Control Minerva
Moon Dash Minerva
Mr Doo Image Systems
Nevryon* The Fourth Dimension
No Excuses Arcana
The Olympics The Fourth Dimension
Orion Minerva
Overload Clares
Pacmania* Domark
Poizone Eterna
Pon! RTFM
Powerband The Fourth Dimension
Provocator Computer Tutorial Services
Pysanki The Fourth Dimension
Quazer The Fourth Dimension
Redshift Minerva
Rekall RTFM
Rockfall Eterna
Rotor* Arcana
Saloon Cars* The Fourth Dimension
Saloon Cars Deluxe* The Fourth Dimension
Scorpius* Arxe Systems
Slappit RTFM
Square Route Computer Eyes
Starch* Alien Images
Tactic Eterna
Technodream Superior Software
Top Banana* Hex
Worra Battle Oak Solutions
X-Fire The Fourth Dimension
Zarch* Superior Software
Zelanites – The Onslaught* Micro Power

ARCADE STRATEGY

Air Supremacy Superior Software
Aliped Alien Images
Bambuzle* Arxe Systems
Break 147 & Superpool* The Fourth Dimension
Bug Hunter Minerva
Bug Hunter in Space* Minerva
Cartoon Line Eterna
Cataclysm* The Fourth Dimension
Caverns Minerva
Chuck Rock* Krisalis Software
Conqueror* Superior Software
Crisis Cambridge International Software
Dungeon The Fourth Dimension
Ego Superior Software
Elite* Hybrid
Enter the Realm* The Fourth Dimension
Galactic Dan The Fourth Dimension
Gods* Krisalis Software
Gribbly's Day Out* Coin-Age
Guile* Dream Ltd
Holed Out*The Fourth Dimension
Holed Out Designer The Fourth Dimension
Hoverbod Minerva
Ibix the Viking Minerva
Interdictor Clares
Interdictor II* Clares
Iron Lord*Cygnus Soft
James Pond Krisalis
Karma: The Flight

Trainer Periscope Software
The Last Ninja* Superior Software
Legend of the Lost Temple Eterna
Lemmings* Krisalis Software
Oh No More Lemmings* Krisalis Software
Maddingly Hall Minerva
Mad Proffessor Mariarti* Krisalis Software
Man at Arms The Fourth Dimension
Manchester United* Krisalis Software
Manchester United Europe* Krisalis Software
MicroDrive Golf Cambridge International Software
MicroDrive Golf World Edition* Cambridge International Software
MicroDrive Course Designer* Cambridge International Software
MiG-29 Fulcrum* Domark
MiG-29 Super Fulcrum Domark
Minotaur Minerva
Mr Doo* Image Systems
Pandora's Box* The Fourth Dimension
Pesky Muskrats* Coin-Age
Pipemania* Empire
Plague Planet Alpine Software
Populous*Krisalis Software
Quest for Gold Krisalis Software
Repton 3 Superior Software
Sim City* Krisalis Software-
Star Trader Alpine Software
Superior Golf Superior Software
Talisman Minerva
Terramex* Krisalis Software
Thundermonk Minerva
Tower of Babel* Cygnus Soft
Twin Worlds Cygnus Soft
U.I.M. The Fourth Dimension
White Magic The Fourth Dimension
White Magic 2 The Fourth Dimension
The Wimp Game The Fourth Dimension
Winter Box RTFM
World Championship Boxing Manager Krisalis Software
World Class Leaderboard US Gold
Worldscape Leading Edge



ADVENTURE

Acheton Topologika
ALPS: Adventure Language Programming System Alpine Software
Avon Topologika
COPS Alpine Software
Corruption* Magnetic Scrolls
Countdown to Doom* Topologika
Enthar Seven Robico
Fish* Magnetic Scrolls
Freddy Teddy's Adventure Topologika
Fugitive's Quest Robico
Giant Killer Topologika
Guild of Thieves* Magnetic Scrolls
Herewith the Clues* On-Line Entertainment
Jinxter* Magnetic Scrolls
Last Days of Doom* Topologika
Murdac Topologika
The Myth of Moby Dick Topologika
The Pawn* Magnetic Scrolls
Philosopher's Quest* Topologika
Return to Doom Topologika
Rise in Crime Robico
Stranded Robico
Utopia David Pilling Software
Wonderland* Virgin Software

MIND GAMES

Arcendium* Alien Images
Casino Minerva
Chess* David Pilling/Simtron
Chess 3D Micro Power
The Cubic Solver David Pilling
Cyber Chess The Fourth Dimension
Dreadnoughts* Turcan Research Systems
Fortune cookie David Pilling
Hero Quest Krisalis Software
Mah-Jong Patience* Cambridge International Software
Play It Again Sam series* Superior Software
Marjong Patience Simtron
Master Break* Superior Software
Memory Magic Cambridge Internatonal Software
Omar Sharif's Bridge* Krisalis Software
Revelation Krisalis Software
Solitaire R.I.D. MacFarlane
Sporting Triangles CDS
Trivial Pursuit* Domark
Waterloo* Turcan Research Systems
Word Up Word Down Alpine Software

TELEPHONE NUMBERS

Alien Images: (061) 7338632
Alpine Software: (0762) 342510
Arcana: Available from Acorn dealers
Arxe Systems: (081) 5341198
Calderglen Computers: (0279) 41883
Cambridge International Software: (071) 2263340
Clares: (0606) 48511
Coin Age: (0282) 692688
Computer Tutorial Services: (0983) 294333
Cygnus Soft: (0533) 559711 ext 287
Domark: (081) 7802222
Dream Ltd: (0789) 450703
Emire Software: (0268) 541126
Eterna: (0933) 279300
Fourth Dimension: (0742) 700661
Hybrid: (0223) 420360
Image Systems: (0229) 430200
Krisalis: (0709) 372290
Leading Edge: (0532) 458800
MicroPower: (0532) 458800
Minerva Software: (0392) 437756
Oak Solutions: (0532) 502615
Periscope Software:
RTFM: (0534) 67870
Shibumi Software: (0392) 421762
Superior Software: (0392) 421762



CARING AND SHARING

David Dade continues his survey of public domain software and looks at a selection of high-quality careware and shareware

Public Domain is a catch-all term, which many people interpret to mean free software. In fact, PD is simply a means of program *distribution*; it does not necessarily absolve the user of a program from payment in some form. Within the public domain there are many mansions, only one of which is actual 'freeware'; software which, once acquired, can be legally used and passed on without payment to the author or anyone else.

This month we look at shareware and careware, two forms of PD software that require at least some payment to be made for continued use although, in many cases, the software is available free for evaluation (see box on page 90 for full definitions of careware and shareware).

READERS

Careware
Availability: direct from supplier
Supplier: Anthony Frost, 10 Whiterocks Park, St Anns Chapel, Gunnislake PL18 9EF
Price: £10

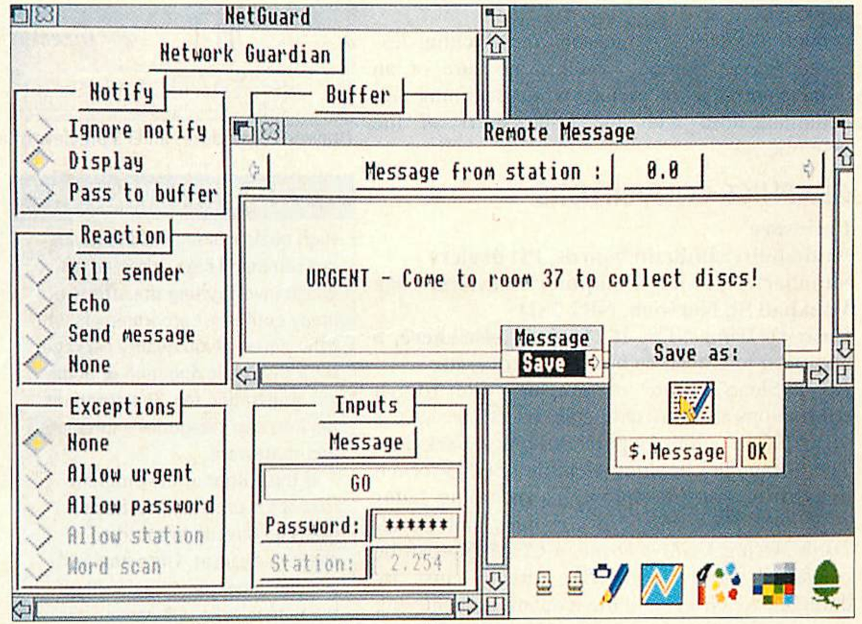
Reading through kilobytes of bulletin board or email messages online can be an expensive pastime, so it makes sense to download the messages in batches and read them offline. A large message text file is quite a slog to read through, but *ReaderS* by Anthony Frost turns a chore into a pleasure.

ReaderS is a careware product that runs on all Archimedes machines and can be used to display and read messages in many formats. These include messages downloaded from systems running on ArcBBS, Cix, UseNet, Silver Express, QWK, BT Gold and now, also, Demon Internet. A modular message formatter allows new user-defined message formats to be easily added as required.

Of the program's many features, the most useful and cost-saving are those of archiving and message threading. This enables you to refer back offline to recent messages concerning the current subject. A compressed archive of all previous messages is retained by the program and earlier replies can be reviewed just by clicking on an icon button, so there's no need for you to log on to the bulletin board again to find a back-reference. *ReaderS* can be configured to keep message archives from many different host systems, with individual configurations of search keywords, message retention times and so on.

Replies to messages can be typed and edited in an *Edit* style window, which allows automatic quotes from the original message to be inserted if required, and then *ReaderS* codes and archives the replies ready to be uploaded back into the host system. Comprehensive keyword searches of the locally archived message bases can be made to give a list of matching references. The keyword search can be from a message header or text, and individual messages can be extracted as separate files.

The program comes complete with a comprehensive manual and costs only £10. All the money received from the sale of *ReaderS* goes to the Royal National Lifeboat Institute and the Cornwall Air Ambulance Trust, so you can save on your phone bill and feel good about supporting good causes too.



NetGuard receives a friendly message from another user

NETGUARD

Shareware
Availability: From bulletin boards
Supplier: Risconix 54 Neath Rd, St Judes, Plymouth. PL4 8TG
Registration fee: £5 (site licence £20)

NetGuard is a flexible application written by student Graham King, which intercepts incoming Econet network messages and deals with them in a number of user-definable ways. When using an Archimedes or Acorn machine on an Econet network, you are in indirect contact with every other machine, and you can use the NOTIFY command to keep in touch with other users on the network. Unfortunately this facility is open to misuse, as the NOTIFY message is displayed in a non-multitasking window that halts your machine, and receiving multiple NOTIFY messages can seriously hamper your work. You can get round this using the PROT command, but this excommunicates you from all other users except the fileservers.

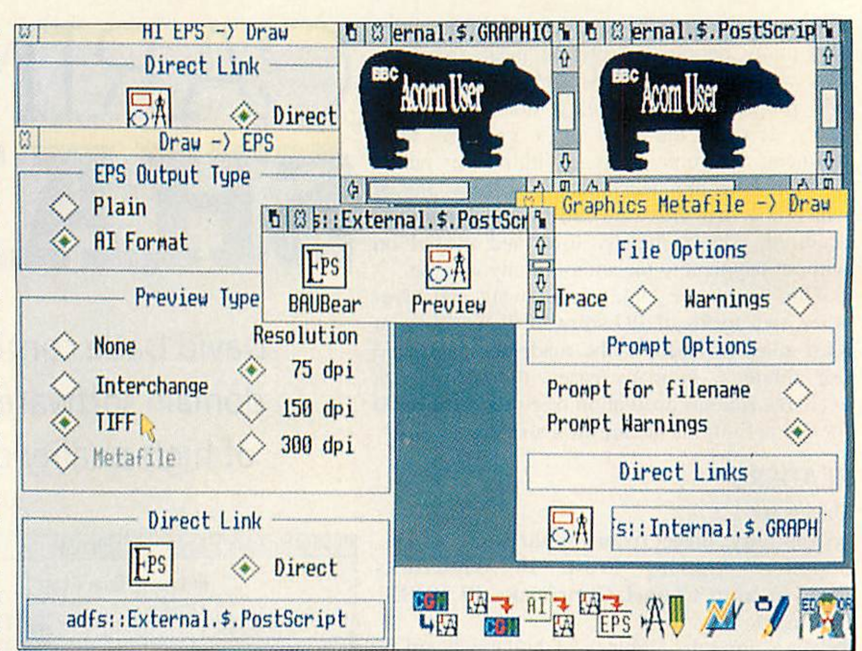
Incoming network messages are intercepted by *NetGuard* and the program interprets them according to a set of user-chosen options. The options allow three basic functions. First, notify

the user by displaying the messages nicely, or storing them in a buffer for later reading, or ignoring them completely.

Second, react to the incoming messages. Some of these options are retaliatory, such as returning the message to the sender, or in extreme cases, remotely crashing the sender's machine. Alternatively, a user-defined message can be returned automatically to legitimate senders.

Thirdly, display the message immediately if certain exceptions are met, such as if the message begins with the word 'URGENT' or contains a predefined password. Finally, the Econet Protection Word, held in CMOS Ram in some machines, can be manipulated directly to prevent remote copying of memory and other attributes of your machine's network operation, including its ability to receive network messages.

With *NetGuard* running on your Archimedes-based Econet station, you can be sure of an uninterrupted work period, while retaining full communication with the other users of the network.



Draw->EPS produces an EPS preview of a Draw original

GRAPHICS CONVERTORS

Careware
Availability: Bulletin boards, PD dealers
Supplier: Norwich Computer Services, 96a Vauxhall St, Norwich, NR2 2SD
Cost: £6 from NCS. If obtained elsewhere, a donation to Cheshire homes is required.

Keith Sloan's suite of graphics file format conversions offer Archimedes users file access to and from other popular graphics packages. The Computer Graphics Metafile (CGM) format is used by many PC programs including *Lotus Freelance Plus*, *Harvard Graphics* and *Corel-Draw*. Using *CGM->Draw*, a CGM file can be converted to a *Draw* file directly just by dragging a CGM file to the iconbar, and entering the name of the destination file in the pop-up save box.

The *CGM->Draw* options window allows direct import to an application which must support a Wimp data transfer protocol – for example, *Impression* and *Draw* are applications that do. *Draw->CGM* works in a similar way to import CGM files into *Draw*, but there are more conversion options accessible from the icon bar menu. There are certain restrictions in the conversions to and from *Draw* format files which are explained in the accompanying help files, and Keith is always interested in hearing from users with problem file conversions.

The other complementary pair of utilities in Keith Sloan's careware conversion suite are *Draw->EPS* and *AiEPS->Drw*. The first is used to convert Acorn *Draw* files to Encapsulated Postscript format. The idea behind Encapsulated Postscript is that it may be incorporated into another document or diagram. When the target application is producing its PostScript output it includes the EPS files at the appropriate places. Some EPS files may contain preview images of the file, making it easier to view the file during editing. This preview image may have a number of formats of which two (Interchange and TIFF) are supported by *Draw->EPS*. A side feature of the program is that you can extract the TIFF sections of an existing EPS file by dropping it onto the bar icon, and saving the resulting *Draw* file.

A similar loading method is used as described before, and if the destination is an application, it must be able to accept the EPS filetype (&808). Outputs available are Plain Postscript and Adobe Illustrator Format version 2.

Both *Draw->EPS* and *AiEPS->Drw* use configuration files to control the conversions from Postscript font names to Acorn *Draw* font names, but strangely each application's supplied config files are not of the same format. *AiEPS->Drw* performs the reverse process to produce *Draw* files from Adobe Illustrator Format Version 2 Encapsulated PostScript documents using the same load and save actions.

These two pairs of complementary file format conversion programs make interchange of graphical data between both Archimedes and PC packages flexible and easy.

WHAT'S IT WORTH?

High quality commercial software can command high prices, so it's worth investigating the efforts of many enthusiast programmers who offer equally high quality packages for a charitable donation or nominal registration fee. The programs fall into two categories – careware and shareware.

If the author of the program releases it as careware, the proceeds go directly to specified charitable causes. The actual software may be available directly from the author, who will pass on the donation and then supply the software, or a distributor may be authorised to provide the programs to users who send in donations. The software is supplied only after the donation has been received.

Shareware programs are available freely from software libraries and bulletin boards 'on approval', and the user is expected to pay the author a modest registration fee as a condition of continued use. This is certainly worth doing as it often entitles the registered user to a more recent version or to regular updates to the software.

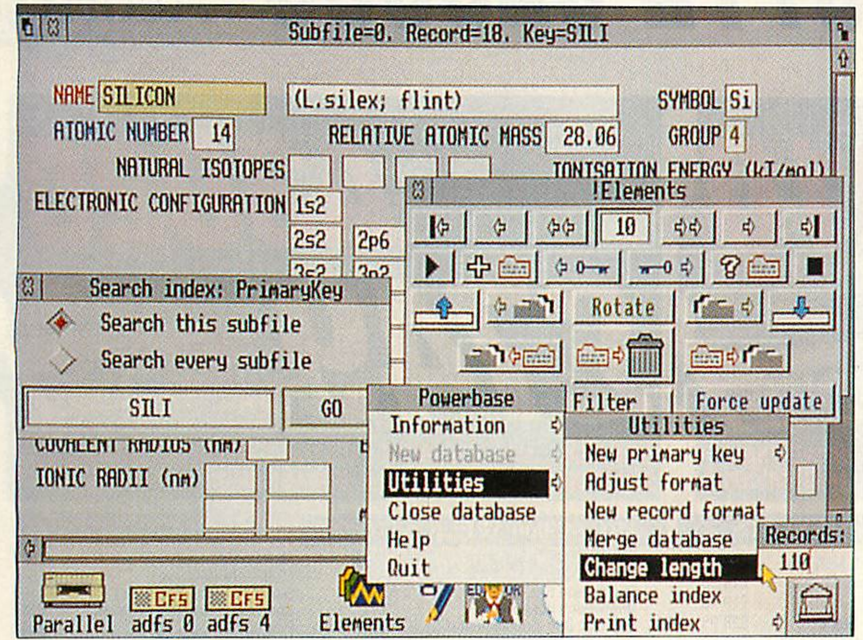
Shareware is based entirely on trust, as there is no way an author can ensure that users do send any payment. Many shareware authors have become disillusioned and disappointed that so many users fail to register and yet complain about bugs and suggest alterations. Such misuse of shareware programs can only reduce the amount and variety of useful software released by well-intentioned authors.

STRONGEd 2 v1.00

Shareware
Availability: Bulletin boards
Supplier: Guttorm Vik Holbekken 208 5262 Arnatveit Norway
Registration fee: £5 paid to author

StrongED 2 is a shareware text editor on the style of the *Edit* application, but with very many improvements. The program is written by Guttorm Vik, a prolific Norwegian Arm software writer. *StrongEd 2* is supplied with a companion application, *StrongHlp*, which runs in communication with it, and allows many useful lookup functions, and in itself forms a glossary of programming terms and keywords in Assembly language, Basic, Arm code, SWIs and VDU codes as well as help on the functions available in *StrongEd 2*.

The main editing window may be configured to show a narrow information pane below it with continuous display of the cursor position, the Insert/Overwrite status and the current TAB key mode. This very flexible TAB function can produce three different types of tab. What the



Powerbase dishes out the dirt on silicon

author calls 'Truetab' shows on screen as as horizontal caret shape that fills to the tab size set in the Tab menu. The 'nearest' Tab type produces an automatic indent to match the line above, and an adjustable width tab can be entered from the Tab key menu.

The usual Risc OS editing hotkeys are supported for moving around, copying, pasting and saving parts of the document, with dozens of others that give access to the other *StrongEd2* features. These include help screens on words the cursor is in by pressing F1 – ideal for Basic programming for which automatic loading and saving is also available – and a surprisingly useful option from old Basic editor days, copy-cursor editing.

Just a few of the other features that can be appreciated are the use of the Insert key to toggle between Insert and Overwrite, a search list window that can show the whole line where a search match occurs and moves the cursor to it when clicked on, and an amazing Interactive Search function. As you type your search key into the search window, the text scrolls and highlights possible matches automatically. The only function I really miss (in the version reviewed) is the Case Toggle function, CTRL-S, used in Computer Concepts products.

StrongEd2 is an excellent alternative to other editors, even the improved *Edit* of Risc OS 3.1, and will make lots of users wonder how they managed without it. A few little hidden jibes at *Edit* will be found if you look carefully through the many useful functions.

POWERBASE

Shareware
Availability: Bulletin boards
Authors: Derek and Steven Haslam, Powerbase Support 112 Keighley Road Colne Lancashire BB8 0PH
Registration fee: £10, for which you get technical support and free upgrades

PowerBase is, as the name suggests, a powerful and feature-packed database management system that can be used equally well with a small database on a floppy or with many thousands of records on hard disc. There are example databases included in the package, as well as a comprehensive help system based on Ben Summers' PD *HelpReader*. The help system takes new users through working with the example databases and on to creating new ones with all the sophisticated features available in *PowerBase*.

Databases can be created by the user in four stages – creation of the application shell, designing the record screen, deciding the number of blank records and specifying the primary key for the data. The first is automatically done when you choose the New Database option from the bar icon menu. The screen design window allows you to drag into position with the mouse pointer various types of data field, such as alphanumeric, upper case only, numeric, date format (DD-MM-YY) and calculated numeric contents based on the values of other fields, which can make the system work like a cross between a database and a spreadsheet.

There are also validation tables to prevent entry of meaningless data, complex search key formulas, password access to functions – like access to a database or deleting entries in one – and many other options. The primary key is selected from part or parts of data fields that will be used in searches.

The example database on The Elements shown above, demonstrates the main features of the system. A keypad window allows movement through the database with tape-recorder style icons, or you can Play and Stop an automatic flip-through of the records. Data can be added by bringing up a blank record with the Plus icon, while searches are made using the Query icon. The search key field can be changed with the Key icons which select an alphabetic order display or display elements in order of atomic number. The data may have several different indexes according to its nature. Records can be deleted, but are removed into a subfile first for safety – the dustbin icon is used when a record is to be lost for good.

One of the strengths of *Powerbase* is that you can change some design features after the database has been created. The utilities on the iconbar menu allow changes to the primary search key construction, and adjustments to the record screen format screen. Even rebuilding a database by copying from, or merging with another is possible, as is shortening or lengthening of the whole database. A powerful script language is incorporated which enables you to automate frequent jobs, such as printing reports and lists extracted from a database. Reports may also be generated with suitable formatting for export into *Impression* documents.

I found some difficulty in running *Powerbase* on a Risc OS 2 machine, as there are at least 26 window definitions loaded at startup, and not many other applications would run without encountering the dreaded 'too many windows' report. In addition, the possible complexity of configuration can be a little daunting at first, but the examples and comprehensive help system go a long way to explain how to get the best results. All in all, this is an invaluable database package and well worth the £10 contribution.

PD SUPPLIERS

- Norwich Computer Services: 96a Vauxhall Street, Norwich, NR2 2SD. Careware discs cost from £6
- Arcade Bulletin Board: 081-654 2212 and 081-655 4412. Careware file downloads – for access donate at least £5
- ARMistic PD and Shareware Library: 130 Wellesley Road, Ilford, Essex. IG1 4LJ
- Odyssey BBS (Beverley UK) (0482) 870919
- World of Cryton BBS (Somerset) (0749) 670030 and (0749) 679794

ORION COMPUTERS

0772 623000







NEW A3020 £749

2MB RAM . 2MB DISC DRIVE . NETWORK INTERFACE CONNECTOR
3 BUTTON MOUSE . PRINTER & SERIAL PORTS . EXPANSION PORT

ACORN COMPUTERS

Acorn A4 & Accessories

A4 4/60Mb HD	£1699
A4 2Mb RAM Upgrade	£110
A4 60Mb HD Upgrade	£350
A4 Battery Pack	£50
A4 Econet Upgrade	£50
A4 Portable Handbook	£7.50
A4 Shoulder Bag	£35
A4 Technical Reference Manual	£65
A4 Welcome Guide	£10

Acorn A5000 Series

A5000 4Mb + 80Mb HD + printer	£1612
A5000 LC4Mb + 80Mb HD + printer	£1659
A5000 4Mb + 120Mb HD	£1599
A5000 4Mb + 120Mb HD + printer	£1812
A5000 ES Econect System	£1299
A5000 NS Network System	£1399

(optional printer is an Acorn JP150 or a Canon BJ10 EX with ASF)

All A5000 4Mb models include an Acorn Multisync Monitor in the price.

Acorn Pocket Book

16 bit 256k RAM	£212.72

Finance Schemes

We Operate the Acorn Educational, Teachers and Finance Scheme. Call for details

MONITORS

Acorn Colour (AKF40)	£220
Philips CM8833 II Colour	£208
Taxan MultiVision 775 *(0.28 Dot Pitch)*	£388
Taxan MultiVision 795A	£435

(0.26 Dop Pitch. FST Black Trinitron Anti-Glare Tube)
Free VIDC enhancer with the 795A

BOOKS/MANUALS

Programmers Ref. Manuals	£77.00
Arc. Games Makers Manual	£14.95
BASIC V Guide	£19.45
A3000 Technical Guide	£28.95
A5000 Technical Guide	£63.00
A540 Technical Guide	£63.00
BASIC V: A Dabhand Guide	£9.95
Archimedes First Steps	£9.95
Budget DTP on the Arc.	£12.95
Archimedes Asembly Language	£14.95
Archimedes Operating System	£14.95
'C' - A Dabhand Guide	£14.95
Mastering 1st Word Plus	£13.95
Mastering 1st Word Plus + disc	£21.90
Acorn D.T.P. Manual	£10.00
Acorn Desktop C	£25.00
Acorn Desktop Assembler	£25.00
First Impressions + Disc	£29.95
Good Impressions + Disc	£26.95

There is NO (0%) VAT on all books.

NEW A5000 £1399



ARM 3 . 4MB RAM . 2MB DISC DRIVE . 80MB HARD DISC

ARC/A3000 APPLICATIONS

D.T.P.

Impression II (CC)	£127
Impression Junior (CC)	£72
Impress. Bus. Supplement (CC)	£41
Impress Borders (CC)	£12
EasiWriter (Icon Technology)	£133
Desktop Folio (ESM)	£79
Equasor (CC)	£42
Showpage (CC)	£108
Artworks **New**	£139

WordProcessors

1st Word Plus Rel. 2 (Acorn)	£69
PenDown (Longman Logotron)	£46
PenDown Plus (Long. Logo.)	£68
EasiWord (Minerva)	£Call

Integrated Packages

Pipedream 3 (Colton)	£119
Pipedream 4 (Colton) **New**	£178
Desk Top Office (Minerva)	£69

Databases/Hypertext

Flexifile (Minerva)	£84
Multistore (Minerva)	£154
Genesis II (Oak Solutions)	£119
Knowledge Organiser (Clares)	£41
PinPoint (Long. Logo.)	£85
PinPoint Jnr (Long. Logo)	£23
Magpie (Long. Logo)	£53
Squirrel (Dig Serv)	£125

Accounting Software

Home Accounts (Minerva)	£34
Business Accounts (Minerva)	£298

Languages

Desktop C (Acorn)	£188
Desktop Assembler (Acorn)	£128

Education

Fun Sch. 3 Und. 5's (Database)	£17
Fun Sch. 3 5-7 (Database)	£17
Fun Sch. 3 Over 7's (Database)	£17
Fun Sch. 4 Series (Database)	Each £24
Adventure Playground (Stormsoft)	£14
Ollie Octopus Sketchpad (Stormsoft)	£14
Amazing Ollie (Stormsoft)	£14
Flightpath (Stormsoft)	£23.50
Maths Pack (HS Software)	£14
Reading Pack (HS Software)	£14
Bumper Pack (HS Software)	£17
Cross Word (HS Software)	£14
Fun & Games (HS Software)	£14

Spreadsheets

Schema (Clares)	£98
Eureka (Long. Logo.)	£103
Arc DFS (Dabs Press)	£22

Utilities

Dot Matrix Colour Driver (Ace)	£12
Compression (CC)	£41
MultiFS (Arxe)	£26
Hearsay II (Beebug)	£69
ARCTerm7 (Serial Port)	£67
Turbo Driver (CC)	£49
RISC Developments Driver (??)	£??

UPGRADES

Ram

A3000
1 to 2Mb RAM £45 1 to 4Mb RAM £129

A5000 1 to 4Mb RAM	£95
A400 RAM	£39 per Mb
A540 4Mb RAM Card	£369

RISC OS 3.1 UPGRADES

A5000 £19.95 **Risc OS 2 machines** £49
Rom carrier is required for A305, 310, 440 £28

(Above memory fitted for £10.00 plus courier charge)

Hardware Upgrades

ARM3 - Ground Control	£185
Canon BJ TurboDrivers (CC)	£48
FaxPack (CC)	£289
Joystick Interfaces	from £23
Midi Expansion Card	£65
Scanlight Junior 256	£199
Scanlight A4	£289
Acorn Serial Upgrade (A3000)	£18
VIDC Enhancer	£27
Vision Digitiser Archi	£49
Vision Digitiser A3000	Int £49 /Ext £62

PRINTERS AND LASERS

PLEASE NOTE
*All our printers are UK Models and **NOT** grey imports. Please take this into account when deciding where to purchase your printer.*
FREE ARC CABLE WITH ALL PRINTERS

Canon (Inkjet Printers)

BJ10EX	£185	BJ10EX ASF	£47
BJ10EX Batt	£42	BJ10EX Turbo	£235
BJ300	£296	BJ330	£386
BJ300 ASF1	£94	BJ300 ASF2	£71
BJ330 ASF1	£116	BJ330 ASF2	£86

Citizen (2 year warranty)

120D+ Parall	£117	Swift 9 Colour	£156
Swift 9x	£205	Swift 24e Col.	£232
Swift 24x	£302	Sw. 9/24Stand	£24
Swift ASF	£72	24x ASF	£126
120D+ C64	£132		

*Coming soon the **NEW** Citizen Swift 2 range*

Epson (new models)

LX400	£117	LX850+	£149
LX1050	£215	FX850	£273
FX1050	£345	LQ 100	£166
LQ570	£214	LQ870	£371
LQ860 Col	£450	LQ1010	£276
LQ1060 Col	£603	LQ 1070	£321
LQ 1170	£443	LQ2550 Col	£709

Hewlett Packard

Paintjet	£Call	Paintjet XL	£Call
DeskJet 500	£275	DJ 500 Col.	£413
D/jet FX80 cart	£56		

Panasonic

KX-P1170	£112	KX-P2180	£219
KX-P1123	£138	KX-P1124i	£183
KX-P2624	£285	KX-P2123	£175
KX-P2123Col	£195		

PLEASE CALL FOR ANY PRINTERS NOT LISTED

Star (new low pricing!)

LC20	£117	LC200C	£151
LC15	£179	LC24/20	£158
LC24/15	£246	LC24/200	£171
LC24/10	£???	Qume 300dpi	£866

LASERS

Colour Direct	£Call
600DPI Laser Direct Card	£326
LBP4 light	£499
LBP4 + 1Mb - 4PPM	£699
LBP8/III+ - 8PPM	£969
LBP4 - 600dpi Laser Direct	£989
LBP8 - 600dpi Laser Direct	£1295

Cumana CD-ROM Multimedia Packs £699

CD-ROM Drive, SCSI Card, !CDPlayer, 3 CD Caddies, stereo speakers, 6-RISCOS CD-ROMS. The Illustrated Holy Bible, The Illustrated Works of Shakespeare, Sherlock Holmes on a Disc, The Hutchinson Encyclopedia, Dictionary of the Living World, Revelation2, etc.





Orion Computers



Orion Computers

32 BIT POWER

The Graphics Factory - The CLIP ART Collection

Volume 2: General - over 650 images
Volume 3: Animals - over 300 images
Volume 4: Sport - over 280 images
Volume 5: Characters - over 30 topics



Each Volume Includes Graphics Factory Sprite Utilities





2MB RAM . 2MB DISC DRIVE . OPTIONAL HARD DISC . BATTERY PACK
3 BUTTON MOUSE WITH KEYBOARD EMULATION . GREYSCALE SCREEN

Music

Armadeus (Clares)	£61
Rhapsody II (Clares)	£45
Tracker (Serial Port)	£38
Notate (Long. Logo.)	£51
Scoredraw (Clares)	£44
Rhythm Box (EMR)	£36

Graphics

Poster + Font (4Mation)	£79
Render Bender II (Clares)	£98
Graphbox Pro. (Minerva)	£104
Pro Artisan (Clares)	£79
Revelations (Long. Logo.)	£66
Revelation II (Long. Logo.)	£102
Atelier (Minerva)	£69
Chameleon (4Mation)	£25
SmArt (4Mation)	£55
SmArt Filer (4Mation)	£35
Snippet (4Mation)	£25
Vector (4Mation)	£79
ARCLight (Ace)	£42
Euclid (Ace)	£51
Mogul (Ace)	£17
Splice (Ace)	£26
Tween (Ace)	£26
Illusionist (Clares)	£78
Titler (Clares)	£120
Artworks (CC)	£139
PrimeArt (Minerva)	£69
Type Studio (Beebug)	£38
Font FX (Data Store)	£9
Shape FX (Data Store)	£9

Misc

PC-Emulator *Latest Version* (Acorn)	£93
Investigator II (Serial Port)	£22
ARCticulate	£18

ARC/A3000 GAMES

3D Construction Set (Domark)	£35
Air Supremacy (Superior Soft)	£17
Alerion (Alien Images)	£11
Aliped (Alien Images)	£11
Alien Invasion (Alien Images)	£11
All-In Boxing (Alien Images)	£11
Arcendium (Alien Images)	£11
ARCtist (4th Dimension)	£19
Ballarena (Eterna)	£15
Black Angel (4th Dimension)	£24
Blaston (Eterna)	£15
Break 147/Superpool (4th Dime.)	£24
Bubblefair (Eterna)	£14
Cartoon Line (Eterna)	£18
Cataclysm (4th Dimension)	£18
Chequered Flag (C.I.S.)	£18
Chess 3D (Micropower)	£14
Chocks Away Version II (4th Dim.)	£18
Chocks Away Extra Missions (4th D)	£14
Chocks Away Compendium (4th D)	£26
Chopper Force (4th Dimension)	£21
Chuck Rock (Krisalis)	£18
Colony Rescue (Alien Images)	£11
Cyber Chess (4th Dimension)	£35
DreadNoughts (Turcan)	£25
Dreadnoughts - Bismarks (Turcan)	£14
Dreadnoughts - Ironclads (Turcan)	£14
Drop Ship (4th Dimension)	£14
Dungeon (4th Dimension)	£26
Elite (Gold Edition) (Hybrid)	£31
Enter the Realm (4th Dimension)	£18
E-Type Compendium (4th Dime.)	£18
Fine Racer (Eterna)	£14
Galactic Dan (4th Dimension)	£19
Gods (Krisalis)	£19
Gribbly's Day Out (Coin Age)	£19
Grievous Bodily 'ARM (4th Dime.)	£18
Guile	£24
Holed Out Compendium (4th Dime.)	£18
Hostages (Superior software)	£14
Inertia (4th Dimension)	£14
Iron Lord (Cugnus)	£14
James Pond (Krisalis)	£18
Karma - Flight Trainer (Periscope)	£19
Last Ninja (Superior)	£17
Legend of the Lost Temple (Eterna)	£20
Lemmings (Krisalis)	£18
Lotus Turbo Challenge II (Krisalis)	£19
Magnetic Scrolls Collection (Virgin)	£25
Mahjong Patience (C.I.S.)	£14
Man at Arms (4th Dimension)	£14
Manchester Utd. Europe (Krisalis)	£18
Master Break (Superior software)	£14
Microdrive 3D World Edition (C.I.S.)	£21
Mig-29 Super Fulcrum (Domark)	£25
Nebulus (Krisalis)	£19
Nevryon (4th Dimension)	£14
Oh No, More Lemmings (Krisalis)	£15
Omar Shariff's Bridge (Krisalis)	£24
Pandora's Box (4th Dimension)	£18
Pesky Muskrats (Coinage)	£18
Play it Again Sam 1 (Superior)	£19
Poizone (Eterna)	£14
Populous (Krisalis)	£24
Powerband V. II (4th Dimension)	£18
Quest For Gold (Krisalis)	£18
Rockfall (Eterna)	£14
Saloon Cars Deluxe (4th Dime.)	£24
Saloon Cars Extra Courses (4th D)	£14
SimCity (Krisalis)	£24
Speech (Superior software)	£14
Starch (Alien Images)	£11
SWIV (Krisalis)	£18
Technodream (Superior)	£18
The Real McCoy 1, 2 or 3 (4thD)each	£22
Thing of Darkness (Eterna)	£19
Tower of Babel (Cygnus)	£18
Twin World (Cygnus)	£13
Waterloo (Turcan)	£18
Wimp Game (4th Dimension)	£14
Wonderland (Virgin)	£22
World Champ. Boxing Manager (Kris)	£18
X-Fire (4th Dimension)	£18
Zelanites (Micropower)	£18

NEW GAMES IN RED
COMING SOON IN YELLOW
Please ring for current prices on software **NOT** *listed here*

BUY ANY 3 GAMES GET 1 ALIEN IMAGES GAME FREE

ORDERING INFORMATION

Please send your orders including a signed cheque, postal order or credit card number & expiry date (NOT CASH) to:

Orion Computers,
Department 1 2 3
250 Leyland Lane,
Leyland,
Preston. PR5 3HL.

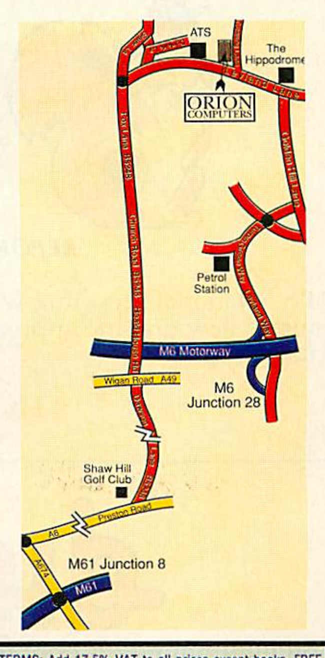
Please make all cheques and bankers drafts payable to Classeffect Ltd.
Please don't forget to add the VAT.

Telephone orders may be placed between 9.00am and 5.00pm. Please have your credit card number and expiry date ready.

Tel:0772 623000
Fax: 0772 622917

Open Mon-Fri: 9 am - 5pm.
Sat: 10am - 1pm

HOW TO FIND US



RIBBONS AND PRINTER CARTRIDGES

Branded Ribbons

Amstrad DMP2000/3160	£5
Citizen 120D	£3
Citizen Swift 24 Black	£4
Citizen Swift 24 Colour	£14
Epson LX80/86	£4
Epson FX80,MX80,LX800	£5
Epson LQ400,550 fabric	£6
Epson MX100,FX1000,FX1050	£6
Epson EX800/1000 Black	£7
Panasonic KXP145, KXP115	£7
Panasonic KXP140	£10
Star LC10	£4
Star LC10 4 Colour	£6
Star LC200 Black	£5
Star LC200 Colour	£11
Star LC24/10 / LC24 200 Black	£8
Star LC24 200 Colour	£13

Printer Cartridges

Canon LBP4 Toner Cartridge	£55
Canon LBP8 Toner Cartridge	£62
Canon BJ130 (BJI481)	£10
Canon BJ10e/10ex (BC01)	£16
Canon BJ300/330 (BJI642)	£11
C'jet 132/Canon PJ1080 Black	£9
C'jet 132/Canon PJ1080 Colour	£14
HP Paintjet Black	£20
HP Paintjet Colour	£23
HP Deskjet Black High Capacity	£21
HP Deskjet 500C Colour	£22
Qume Crystal Print Toner Set	£66
Qume Crystal Print Drum Set	£88

Compatible Ribbons

Amstrad DMP2000	£3
Amstrad LQ3500, PCW8256	£3
Brother M2024	£5
Brother M1009,M1109	£4
Brother HR10,15,20,25,35 Fabric	£4
Brother HR10,15,20,25,35 MS	£4
Canon PW1080A	£4
Citizen 120D/Swift 24	£3
Epson LX80,86	£3
Epson FX80,MX80,LX800,LX850	£3
Epson FX1050,LX1000	£4
Epson LQ500, LQ800,LQ850	£4
Epson LQ1000,LQ1050,FX1000	£6
Epson LQ2500,LQ2550	£6
Epson EX800	£6
Panasonic KXP1081/90,1180/24	£4
Seikosha GP100	£3
Shanwa CP80 Multistrike	£5
Star LC10/LC20	£3
Star LC10 4 Colour	£5
Star LC24/10, LC24/200	£4
Star LC200 Black	£3

Discounts available on all ribbons for quantities of 3 or more.

Please call for prices on ribbons not listed here. We supply almost any ribbon required and, dependent on quantity, any colour. Please Note - Quoting the CARMA Group Code speeds up our search for a ribbon compatible with your printer.

CABLES

Arc to Scart + Audio 1.2m	£8
Arc to Philips 8833 Mk11 1.2m	£8
Arc Keyboard Extention Cable 2m	£7
Arc Mouse Extention Cable 2m	£7
Arc Keyboard Replacement Cable	£7
Arc Mouse Replacement Cable	£7
4 way trailing socket	£5

Please specify machine when ordering

BULK DISKETTES

All our disks come complete with labels etc. and are 100% certified error free. In the event that a disk fails it will be replaced immediately.

DISK TYPE	10	50	100	250	500	1000
TDK DS/DD 3½"	4.80	25	45	115	225	510
TDK DS/HD 3½"	11	57	100	237	450	850
DS/DD 3½"	4	20	33	85	162	298
DS/HD 3½"	7.50	37	67	163	295	530
DS/DD 96tpi 5¼"	n/a	14	26	60	115	209

Minimum Mail Order Value £10.00
Minimum Educational Order Value £15.00

ALL PRICES ARE EXCLUDING V.A.T.

TERMS: Add 17.5% VAT to all prices except books. FREE CARRIAGE on all items within UK mainland. Foreign orders, no VAT, carriage at cost. Quotations available. Access, Visa, Switch accepted All prices are subject to change without notification. Goods available subject to being unsold. Official orders accepted from public sector, education, Plc's, Tender invitations welcome. E. & O.E.









Orion Computers

SQUIRREL

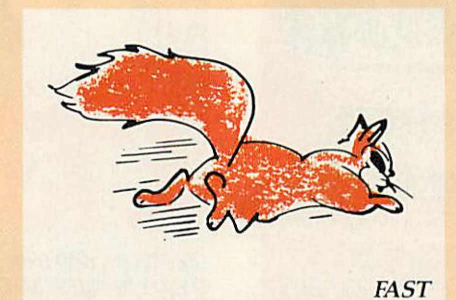


THE REVOLUTIONARY DATABASE FOR ARCHIMEDES COMPUTERS



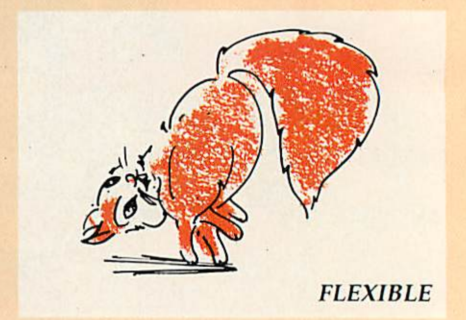
FRIENDLY

Squirrel is the easiest to use database yet, allowing simple point and click database creation and queries.



FAST

Modern indexing techniques mean superfast searches every time.



FLEXIBLE

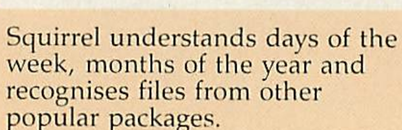
Images, text and sound may be stored in the same database



NETWORK COMPATIBLE

Client/server design ensures that squirrel runs just as well on networks as standalone.





INTELLIGENT

Squirrel understands days of the week, months of the year and recognises files from other popular packages.



COMMUNICATIVE

Queries may be made onto other popular computers such as an IBM or Macintosh, even remotely over telephone lines.



REPORTING

Fully relational reporting with an entirely new graphic approach to data selection.



PROFESSIONAL

Quite simply, the most professional database for Archimedes users.

Single User Version
£129.00 + VAT

Econet/Site Licence
£516.00 + VAT

Suitable for Acorn A3000, A310 and A400 Series.

---

digital services

DIGITAL SERVICES LIMITED
9 WAYTE STREET, COSHAM, PORTSMOUTH, HANTS PO6 3BS
TEL (0705) 210600



PROGRAMS

The section that is packed full of exclusive programs for you to use

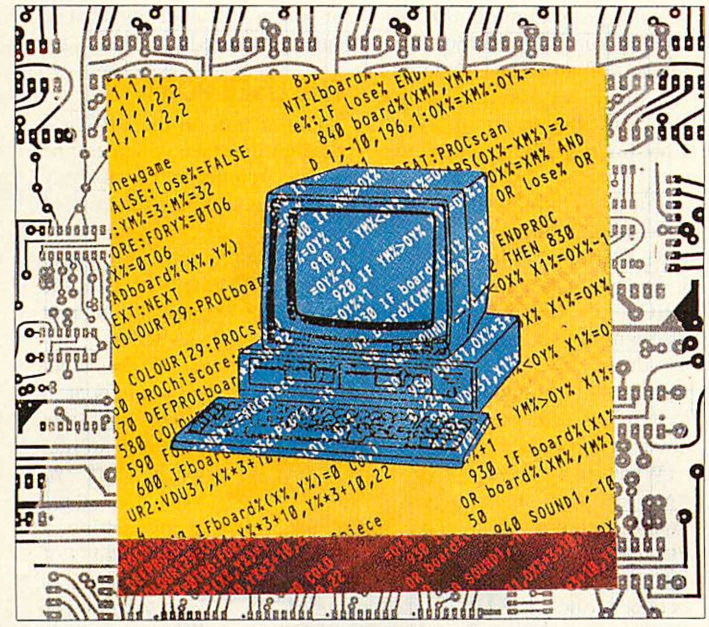
In this month's bumper issue, we have listings galore for you. From programs that create special effects using your *Draw* files to programs and hardware that allow you to control your Christmas tree.

On page 95 you'll find Michael Attenborough's guide to messing around with *Draw* files. Michael doesn't use *Draw* though, he's written his own utilities to do what he wants. *Draw* files consist of a string of commands that tell the computer what lines to put where. Distort this information a little and you can have your text bending round corners, and tying itself in knots.

There's also a program that will take a simple line drawing, and turn it into a picture that resembles a carefully penned piece of calligraphy. And what's more, for those of you who don't want to immerse yourselves in the internal workings of *Draw*, you can simply type in the programs and play away.

Those who thought we were joking about the Christmas tree should turn to page 96 where we have found a seasonal use for the very wonderful user port that BBC Model B and Master owners will find on their machine. This little interface can be used for myriads of control applications, including our easy to make Christmas tree illuminations.

No more do you have to put up with the insanely boring, one light on/one light off display of off-the-shelf fairy lights. Now you can program your own eye-boggling displays. Christmas Day will never be the same again. Never mind the presents, program your fairy lights instead.



CONTENTS

*INFO continues in true epic style on page 103, but look out this month, there are a couple of programs that are not suitable for persons of a nervous disposition. *Tentacles* is a truly disgusting example of what can be achieved with sprite scaling, and it's guaranteed to make you go eerrghh!

There is a collection of your favourite one liners this month, including a game that is tipped to rival *Zarch* in the all-time classic hall of fame.

It is, of course, *The Quest for the Saga of the Legends of Voolb*. Read the atmospheric novella on the monthly disc, then launch yourself into this biblical epic of a game, surely ahead of its time. The *BBC Acorn User* team are currently working on a direct computer to brain link to take the game into virtual reality.

For beginners, or people that want to revise their programming knowledge, *INFO turns to explaining how the computer gets input from the outside world via the keyboard. At last . . . Negative INKEYs and GET strings, all made clear and simple.

BBC Acorn User is read by all types of people, of all ages, and this month we thought it was the turn of some of our younger readers to get a mention. We know of three young readers who want to turn to page 119 right now. Take a look at the programs they've written; we hope they inspire other young readers to write programs and get them into *BAU*. Next month, how about a senior citizens' section?

Finally, this month, we finish with stacks and stacks of stacks. Our regular feature for aspiring Arm programmers teaches you how to store data in the echelons of bytes that make up your computer.

The yellow pages this month begin on page 122 and signal the end of this month's goodies, but we've hundreds of programs awaiting the dawn of the new year. Happy Christmas to everybody out there, and here's to a productive New Year for the *BAU* programming section.

Paul James



MAKING LIGHT WORK

Let your Beeb join in the fun. With Richard Garret's high-tech Christmas tree you can produce a light show to remember

Here we are again; another season of old movies and goodwill to all persons – is upon us so, in this time of present wrapping, turkey stuffing, overconsumption, and domestic argument, let's spare a thought for the neglected among us. By whom I mean, of course, BBC eight-bit microcomputers.

Once the centre of attention at Yuletide, giving joy to all the family with high-tech games like *Kingdom*, many of these faithful retainers are now reduced to printing out Christmas lists in November and are then cast aside in favour of newer, brighter 'family computers' which dominate the celebrations with their own flashy brand of aggressive competition and festive laser-death mayhem.

MAKING A COMEBACK

So all too often, at this time of year, BBCs are packed away into cupboards and spare rooms where they remain, uncared for, until the spring. Once the doyen of the 6502 jetset, the Olympian ideal, beloved of a myriad computer students, the faithful companion of scientists, a peerless examplar among Basic interpreters, the BBC micro now all too often languishes unwanted, its screen dark, its keyboard longing, in vain, for the tender caress of a user's fingertips. Alas, where are the snows of yesteryear? (*That's enough pathos – Ed*)

But this year you can change this sad state of affairs and restore your BBC micro to an important central role in the Saturnalian revels. No, this not a revolutionary programming tip that lets you run Lotus Turbo Challenge 2 on an eight-bit computer, but a way of placing the Beeb at the heart of your Christmas – right under the tree.

Put away those old 'on and off' binary-type flashing fairy lights and use your BBC – or anything else with a user port – to drive an eight-channel 'arboreal illumination system' of near-psychedelic intensity.

What we have here, in fact, is a simple exercise in electronics; an interface between the BBC user port and eight 'strings' of battery powered LEDs masquerading as the fairy lights. In addition to this, we have also provided a short BBC Basic program which makes the lights turn on and off according to a number of different algorithms at a variety of speeds.

THE USER PORT

The user port on the BBC is a parallel interface which can be configured as any combination of eight inputs and outputs. In either case, it can be thought of as eight toggle switches.

When one of the eight lines is used as an input, it detects the state of an external switch ('off' or 'on') and stores it by setting a single bit of memory to zero or one. This state can then be read and acted upon by a program. If all of the eight lines are inputs, the port can detect 256 combinations of switches, which is how the Concept Keyboard works.

When a line is set to 'output', the situation is reversed. The program sets a bit to zero or one, and this turns a voltage 'off' or 'on' at the user port, effectively 'throwing a switch' that controls some device in the outside world (for example, a light-emitting diode).

This is usually set up as a 'latching' switch, so that once the LED has been turned on it remains that way until the program turns it off again.

In this project we set up all eight channels as latching outputs to make eight banks of LEDs flash in up to 256 combinations.

HARDWARE

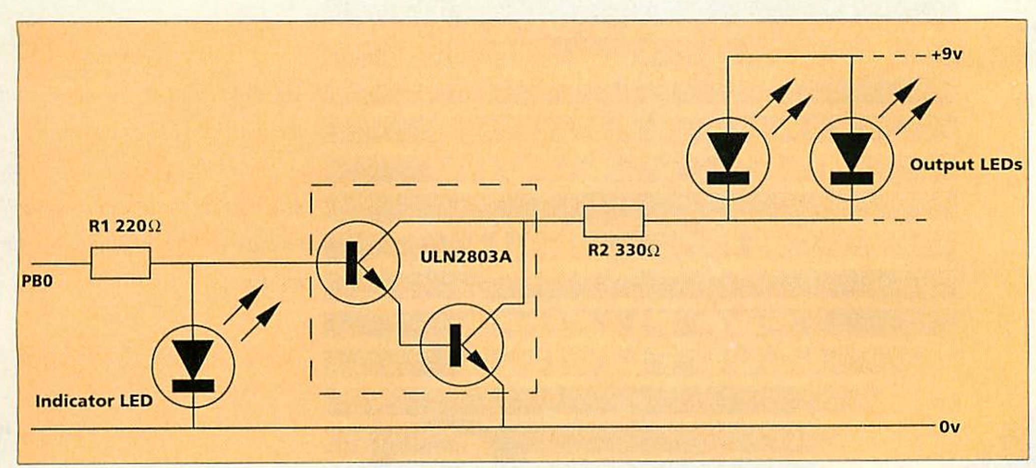
Externally, the hardware for this project is a fairly unassuming device, consisting of a black box with some LEDs and sockets on the top and a 20-way ribbon cable coming out the side. Internally, it's also pretty simple, except that there's eight of everything. To see how it works, take look at the circuit diagram (shown on the opposite page) which, for the sake of clarity, only shows the first channel.

When the user port output PB0 goes high, a voltage appears across the input terminals of the circuit so that current passes through a 220Ω resistor (R1) and illuminates an indicator LED on top of the box. R1 is a 'buffer' which protects the indicator from overload.

The current then passes to a 'Darlington pair' of transistors which acts







One of eight identical channels

TOOLS AND COMPONENTS

The tools that you will need to complete this project are as follows: Vero spot face cutter, a soldering iron, wire cutters, a screw driver, a multimeter or continuity tester, and a drill (for the box).

In addition you will need the following electrical components (we are quoting Maplins' prices): 100×××75 mm Vero 0.1in stripboard at £1.28, IDC 24-pin DIL Header at£1.45, 20-way IDC connector and cable at £1.65, eight 220-ohm½ 0.25W resistors: at 24p, eight 330-ohm½ 0.25W resistors at 24p, eight 5mm LEDs at 96p, ULN 2803 octal Darlington driver array at 75p, 18-pin DIL socket at 10p, eight 2.5mm jack sockets at £2.24, eight 2.5mm jack plugs at £1.92, a plastic box (118x90x45mm) at £1.95, one PP3 battery connector at 12p and one PP3 battery at £1.48 . This makes the total price £12.43.

The external LEDs are about 20p each (The price varies with colour) and you will also need to purchase wire in the lengths you require.

NOTE: For ease of construction and versatility of use, our design is comparatively expensive. A cheaper, but more time-consuming, version could be built by wiring the IDC cable and output cables straight on to the board, thereby dispensing with the jack plugs, sockets and the IDC connector. You could also do away with the indicator LEDs if you felt these were unnecessary. At its most basic, you could probably get away with spending about £4.50 excluding the 'fairy light' LEDs.

as a switch that completes a circuit and connects the output LEDs (the fairy lights) to a 9V battery while keeping the computer isolated from it. The output LEDs are also protected by a resistor (R2) of value 330Ω.

CONSTRUCTION

That's enough theory. Now let's have a look at how to build the circuit board.

Take a look at the two diagrams on page 99, which show the top and bottom of our circuit board. Note that the board itself is 0.1in Veroboard with copper tracks on the underside only but, for easy reading, the diagram shows them on the top as well. The first thing to notice about the diagram is the distinct absence of transistors, which have been replaced by a single integrated circuit called a ULN2803A octal Darlington amplifier.

Don't solder this straight on to the board, use an 18-pin chip socket – it only costs 10p and it will save you an awful lot of hassle.

Also absent from the diagram are seven indicator LEDs and seven jack sockets, which have been left off in order to make the thing easier to read. When wiring up, the sleeve of each jack socket should be connected to an individual output resistor (R2) and all the tips wired in common to the 9v supply line. Each indicator LED should be wired at its positive end to the relevant 220Ω resistor (R1) and at its cathode to the zero volt 'ground line'. Take care when connecting LEDs that you get them the right way round. The small 'flat' on the bottom edge of the LED indicates its negative side or 'cathode'.

The lower diagram on page 99 shows the underside of the Veroboard with marks to indicate breaks in the copper track.

You can make these cuts with a Vero cutting tool or with a twist drill, but be certain that you leave no thin strips of copper behind as these will cause unwanted short circuits. This is particularly important when you make the cut shown topmost in the diagram, which is the one that stops you connecting the battery to your computer.

The other point to notice is that the eight 0v lines from the user port (odd numbered pins 5 to 19) are all soldered together, and then linked to the ground line by a small piece of wire on top of the board. The negative terminal on the battery is also connected at this point. To make a string of fairy lights, simply take two wires and use one to connect all the LED cathodes to the sleeve of a 2.5mm jack plug and the other to connect the anodes to the tip of the plug.

This 'parallel' configuration has a definite advantage over conventional tree lights linked in series because if one LED fails, the rest stay on.

SOFTWARE

The software is pretty basic (no pun intended) and has two modes of operation, ('setup' and 'run'). When you run the program, it displays eight boxes representing the eight output channels.

Each channel can be 'toggled' on and off by pressing one of the numeric keys from 1 to 8; one of three 'flashing algorithms' can be selected by pressing A; and the time delay between flashes can be set, in steps of ten, from 10 to 200 centiseconds (0.1 to 2secs). This is done by pressing D. Once you've chosen these initial conditions, press RETURN to start the sequence running. When you get bored, press SPACE to stop the program and return to 'setup mode'. The three algorithms used to control the flashing are as follows.

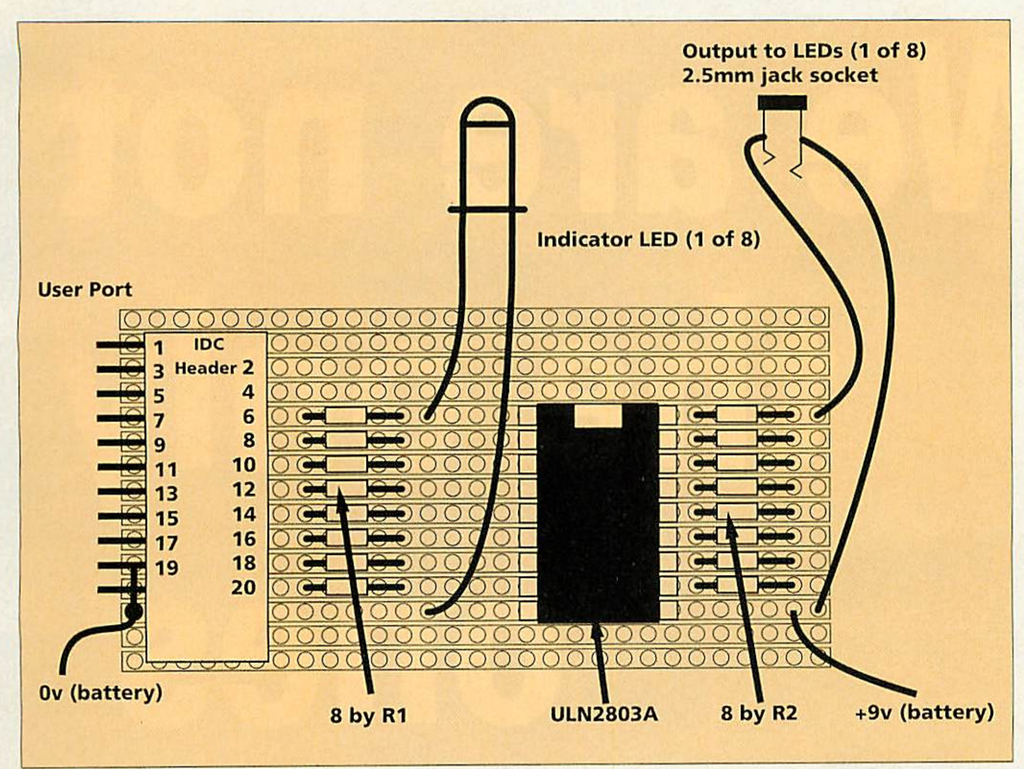
A 'random' algorithm which merely picks a number from one to 255 and plugs its binary equivalent into the eight-bit byte controlling the output strings; a 'random walk' approach which toggles one channel each cycle by 'thinking of a number' between one and eight; and a 'chase' sequence which 'rotates' the control byte by one bit each cycle.

I've deliberately kept the program simple so that you can adapt it for yourself. The key statements that communicate with the user port are the two FX/osbyte &97 (151) calls. These simply take a value and insert into a specific address within Sheila (the part of the operating system that runs the user port).

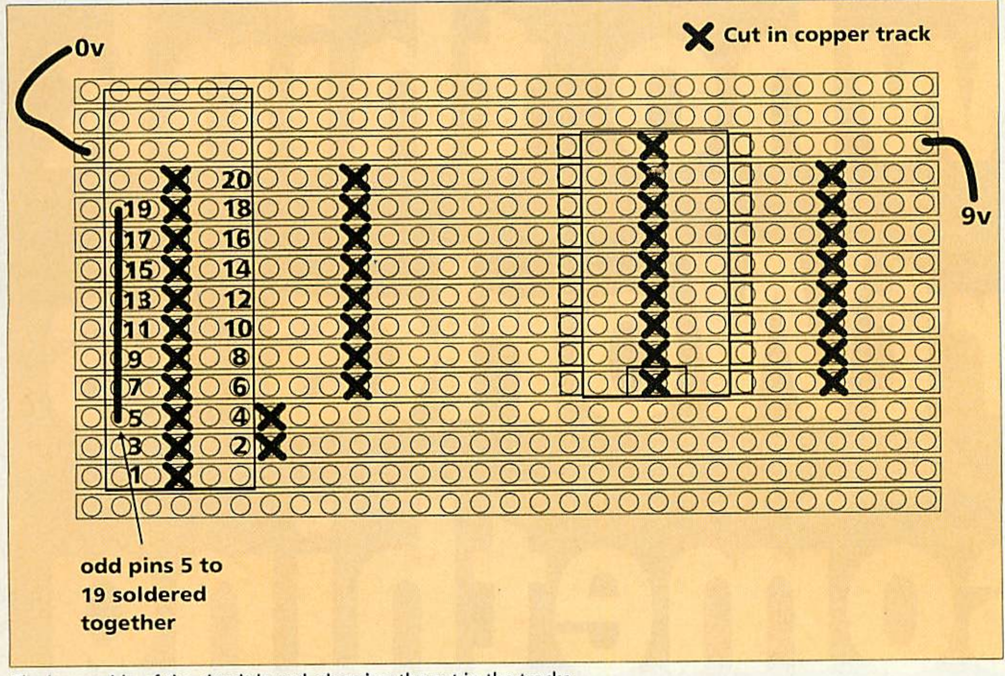
The first instruction, *FX 151,96,255, places the value 255 in Sheila address &60 (96), setting all eight channels to output, while the second osbyte call sends a new value of state to the user port's control address (&62).

This approach is preferable to the 'direct addressing' approach (for example: ?&FE62=state) used by many programmers because you don't need to know where Sheila is located on your machine and also Osbyte compensates for the fact that Sheila uses byte addresses on the Beeb and word addresses on Arcs.

Improvements to the software could include using key interrupts to change the sequence while it is running, using assembler to give faster 'rectangle fills' and so on. As usual we have supplied the



The topside of the do-it-yourself circuit board



The lower side of the circuit board, showing the cut in the tracks

MAKING IT RUN ON THE ARC

This device will only work on Archimedes and A-series machines that have been fitted with a User Port interface. Although these come on a number of different cards (I/O podule, A3000 Midi podule, SCSI boards etc.), they should all respond to Acorn's OS_Byte standard.

You can run the program as it stands under 65Host but it's interminably slow and with a few changes it can be adapted for the normal environment. The two vital changes are as follows:

Firstly, the key select statement in line 400 should change from key = FNkey("8(7'6&5%4$3#2" + CHR$34 + "1!aAdD" + CHR$13 + CHR$13) to key = FNkey("8*7&6ˆ5%4$3#2@1!aAdD" + CHR$13 + CHR$13). This is to accommodate the different shift-numeric keys on the two machines.

Secondly, as OS_Byte on the Archimedes does not call &FFF4, line 740 should change to the following: OSCLI("FX &97,&62," + STR$(state)).

For clarity, you can also change the VDU cursor definition statement in line 180 to OFF and lines 650 and 660 to GCOL O,colour and RECTANGLE FILL x, y, length, height respectively.

programs on our yellow pages and on the monthly subscribers' disc.

GOING FURTHER

Assuming that you got half way through this article, rushed down to a local electrical component shop, built the box and typed in the the program, you should by now have fully functioning merry Christmas lightshow to amuse and confuse your relatives.

But why stop there? As long as you keep the osbyte instruct ions that initialise and drive the user port you can change the software as much as you like. You could add other algorithms (for example, prime numbers, favourite stock market quotations and so on) or even rewrite the program completely, perhaps, getting the Beeb to play Xmas carols, changing the lights with the notes it plays.

On the hardware front, the Darlington driver chip is a versatile beast which not only delivers about half an amp on each channel but also allows you to join a number of inputs together so that, combined, they produce sufficient power to drive small motors and so on.

By using a number of these chips, you could drive eight small motors and go in for some serious kinetic sculpture or, at the very least, a pirouetting fairy on top of next year's tree. The chip also takes up to 50v, so you could adapt the circuit to run off any old 9v power supply unit you have lying around.

The end result of this exercise is a cheap interface that could easily be adapted to a wide variety of projects consistent with targets laid out in the National Curriculum for Design and Technology. Essentially, it is a battery-powered, 'output only' version of the buffer boxes used extensively for control technology work in many school and you will be hearing more on this very topic in future issues of *BBC Acorn User*.

In addition to this, it's a nice example for schools, colleges, and anybody else with spare BBCs lying around, of a way in which this robust and versatile machine can still be put to good use, while trendier and more powerful computers get on with the daily business of human-computer interaction.

Happy Xmas everybody!

We are not the only ones who think ArtWorks is something special.

The New Generation! RISC user



RISC User, the highly popular magazine for Archimedes users, is bigger and better. The new RISC User is now B5 size which offers a sophisticated design, bigger colour illustrations and bigger pages with more information. Altogether better value and no increase in price.

RISC User is still a convenient size to assemble into an easy-to-use reference library, containing all the information you need as an Archimedes user. Every issue of RISC User offers a wealth of articles and programs with professionally written reviews, lively news, help and advice for beginners and experienced users, and items of home entertainment. Altogether RISC User has established a reputation for accurate, objective and informed articles of real practical use to all users of Acorn's range of RISC computers.

RISC User Disc The RISC User magazine disc is widely acclaimed as the best magazine disc available for Acorn computers. Each disc is packed with original software of the highest quality, fully tested and supported by our own staff plus all the programs from the magazine.

Discounts RISC Developments is also well known for its range of professional software and hardware. As a RISC User subscriber you will receive at least 15% off any RISC Developments' software and 5% off RISC Developments' hardware, and this list of products is constantly growing.

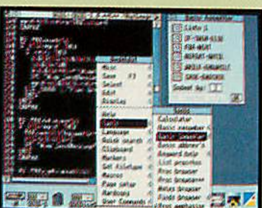
A year's subscription to RISC User is £19.90 for the first year and only £18.40 for a renewal. (Overseas: £29 Europe, £38 Americas and Africa, £41 Elsewhere).

THE BEST PROGRAM AND TEXT EDITOR FOR THE ARC HAS JUST GOT A LOT BETTER

NEW

DeskEdit2

A major new release of the popular and powerful editor DeskEdit brings a whole toolkit of features that will assist all programmers, whether novice or experienced, and whether using Basic or C - and all within Acorn's powerful multi-tasking RISC OS Desktop. There is a lot for text users too.







New features include:

- **Basic program Renumber** - including partial renumber and marked sections.
- **Basic Program Indenter** - indents Basic programs after IF THEN, REPEAT, FOR etc.
- **Basic Abbreviations** - all Basic V's several hundred abbreviations are implemented).
- **Programmer's Calculator** - a powerful calculator especially designed for handling bits and bytes.
- **Multi-purpose Browsers** - an easy to use browser window containing a list of finds. Clicking on any one of these will take you to the corresponding place in your file.
- **Throwback** is fully implemented so DeskEdit can respond to messages from C compilers etc.
- **!FIND** - DeskEdit comes with a powerful stand-alone Acorn application called *Find*, which can find text strings in a whole group of files, just given a wildcarded filename.
- **Extended Saves** - DeskEdit 2 can save a special data file with the position of the caret, wordwrap correctly set and markers

All this of course is in addition to the features that have made DeskEdit so popular among users of Acorn machines, and which resulted in glowing reviews when it was first launched a year ago. IN FACT DESKEDIT IS SO GOOD THAT IT IS USED WITHIN ACORN ITSELF!

DeskEdit 2 (disc, new manual, keystrl and quick reference card) PDE2b £31.95 inc + £2 p&p
DeskEdit 2 Upgrade Code PDEXa £9.95 inc + £2

NEW

Wimp Programming for All on Acorn RISC Computers

book by Lee Calcraft and Alan Wrigley

This new book provides programmers with a complete introduction to all the techniques involved in writing multi-tasking Wimp programs to run within the RISC OS Desktop environment. No prior knowledge of the Wimp is assumed and the tutorial style of the book will enable all programmers to understand the concepts involved and to develop their skills in writing high quality programs within the Desktop environment.

The book consists of ten main chapters and a number of appendices:

We believe that Wimp Programming for All will prove to be the definitive book on this subject for all users of Acorn RISC computers.

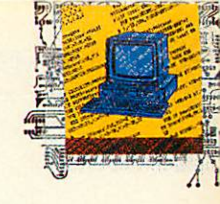
- Chapter 1: Introducing the Wimp
- Chapter 2: Windows
- Chapter 3: The Wimp Poll Loop
- Chapter 4: Error Handling
- Chapter 5: Icons
- Chapter 6: Menus
- Chapter 7: Redrawing Windows
- Chapter 8: The Wimp Message System, Loading and Saving Data
- Chapter 9: Templates
- Chapter 10: Printer Drivers and Outline Fonts

- Appendix A: Indirection Operators
- Appendix B: Application Resources
- Appendix C: Setting up a sprite area
- Appendix D: The Wimp Programmer's Toolkit
- Appendix E: SWI calls described in this book

To support the book there will is a **disc** containing all the programs as listed within the book, together with additional supporting applications.

Wimp Programming for All book	Code BK12	£12.95	inc + £2 p&p
Wimp Programming for All disc	Code BK13	£4.95	inc + £1 p&p

RISC Developments Ltd. 117 Hatfield Road, St Albans, Herts AL1 4JS. Tel. 0727 40303 Fax 0727 860263



*INFO

Dave Lawrence and Dave Acton present their monthly mix of programs for all Acorn users



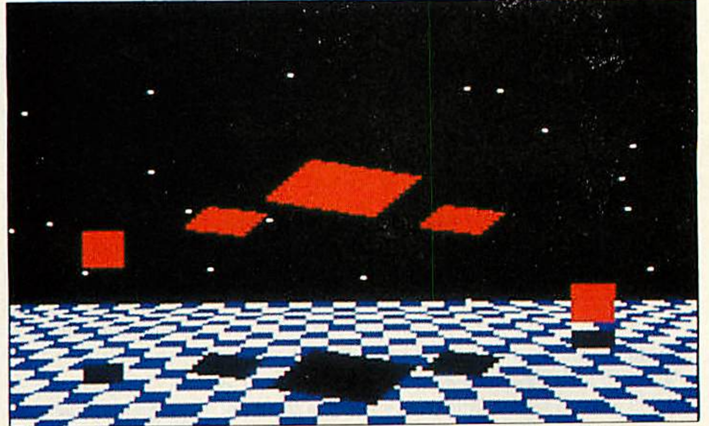
COMPRESSION

Programs: Compress, Demo 1-5
Description: Graphic utility and five demonstrations
Author: Richard Talbot-Watkins
Machine: Eight-bit only
Listings: 150 lines machine code, 5×50 lines Basic

If you think the Beeb's potential for fast animation is virtually non-existent, you'd be wrong. These demos use a compression method to produce very impressive results on an eight-bit machine.

The way the Beeb achieves such smooth and fast animation is by drawing all the required frames of the animation sequence and storing them in memory. These can be then be retrieved and displayed on the screen in quick succession. This is no new idea – in fact, a number of 32-bit programs have used this technique in past issues – but the Beeb is rather limited in that it only has 32K, and some of this has to be eaten up in order to accommodate the screen itself.

The solution is to use screen compression. Instead of storing the screen byte-for-byte somewhere else, it is held in memory in a compressed form; this greatly increases the number of frames which can be stored. The heart of these demos is a piece of machine code which provides the routines to compress and retrieve a screen – this is assembled in the program *Compress*, and is saved as *CompMC*. The main criterion was to be able to redraw a compressed screen very quickly, therefore the compression algorithm may not be the best, but it's fast.


Even with 32K of Ram, Compress makes complex animations possible

To compress a frame the entire screen is scanned for a byte that is not used (if the screen contains every single byte, it cannot be compressed, but this rarely happens). This is used as a flag byte. Then the screen is scanned again, searching for places where a byte is repeated more than three times in a row.

Such an occurrence is marked in the compressed screen by writing the flag byte to it, followed by the number of repetitions and finally the actual byte that is repeated. Expansion is therefore very simple: it transfers bytes from memory to the screen until it encounters a flag byte, in which case it sets up a loop to store a byte to the screen the required number of times – a simple run-length method.

The routine is also very easy to use: in order to compress the current screen, just set !&70 (!screen) to the start of screen address (usually &5800), and set !&74 (!mem) to the address where you want the compressed screen to be stored. Then, just CALL &900 (compress). Usually, !mem only needs to be set up at the beginning, since calling &900 sets !mem to the next free location after it has returned. To play back the compressed screens, just repeat this: set !screen to the start of screen memory and !mem to the address of the compressed screen (again, only necessary at the beginning) and CALL &903 (expand).

Some of the demos 'squash' the screen vertically so that more memory is available for compressed screens – this is the reason for needing to set up !screen, so the screen is allowed to start at any address. The compress routine always reads from the screen until it reaches &8000 – therefore, if the screen is 'squashed', it is mandatory that the start of screen address is programmed so the last byte of the screen is at &7FFF; otherwise you won't benefit from having made the screen smaller.

The actual demos themselves include a Beeb version of the Arc one-liner *TrigProg*, a Beeb version of Jan Vibe's dancing fern – all 23 frames are stored in 20K instead of 500K – and a couple of original displays (some animated pendulums and a Mode 5 demo). Note that all of these demos are written simply in Basic, CALLing the machine code routines to do the complicated bit. By the way, PROCplayback is squeezed onto one line for maximum speed.

Admittedly, some of the programs take a long time to build all the frames, and could be made much faster simply by using machine code. However, the main point was to show that effective animated sequences are possible in Basic, requiring either a bit of artistic flair or simply just a warped mind.

STEREO MOLECULE

Program: 3DMole
Description: Stereoscopic 3D molecular simulation
Author: Morgan Henry
Machine: 32-bit
Listing: 50 lines Basic

If you've got a pair of red/green 3D glasses, dig them out, replace the blue filter with a green sweet wrapper, stick 'em on, and run this program.

Morgan's simple program sets up a 'molecule' of lines and circles and then plots the 'molecule' in two slightly different positions on the screen – in a stereo pair. If you place a red filter in front of your left eye and a blue filter in front of your right, and assuming that

they completely eliminate the other colour, you should be able to see the molecule in glorious 3D vision. Moving the mouse rotates the molecule and left and right mouse buttons zoom in and out.

DIALCODES

Program: Dialcodes
Description: Phone number and PIN aide-memoire
Author: Daniel McFarne
Machine: All machines
Listing: 70 lines Basic

Inspired by a recent trip to the US, Daniel has written this handy little program that may help you to remember phone numbers or your cashpoint card's PIN number.

As Daniel points out, phones in America have letters on their buttons in addition to the numbers. Figure one shows how the phone keypads are laid out. (Note that Q and Z are on number one and that there is nothing on zero). This allows many people to have 'textual' phone numbers. For example, there is a company which supplies all sorts of balloons whose phone number is 1-800-BALLOON (easier to remember than 1-800-2255666). People with seven-letter surnames often use them as their phone numbers.

Sadly this system never really caught on in England. It did exist a long time ago, but BT has generally kept letters off our phones. (Of the three phones in this branch of the *INFO office, only one has letters, and that is an American import).

Cashpoints, however, do tend to have letters on their keypads, so it would be possible to have textual PINs. This is where Dan's program comes in handy.

US phone keys are alphanumeric

BEGINNERS' BIT

In our regular column for new users, we take a closer look at the difference between the Basic keywords INPUT, GET and INKEY.

GET is probably the simplest of the three commands. It exists in two forms, GET and GET$ and is, in fact, a function. In other words it normally appears on the right hand side of an equals sign. Both forms wait for one character from the keyboard, the difference between them is that GET simply returns the Ascii value of the character typed (e.g. 65 for 'A') whereas GET$ converts this code into the actual character. GET$ is therefore equivalent to CHR$(GET).

Listing *Ex-GET* shows a typical use for GET – a simple menu system. The menu options are displayed and then a prompt is given. Lines 130 to 150 repeatedly GET a key from the keyboard until it lies in the range 0 to 9, appropriate action can then take place. This example uses GET, but could equally well be written using GET$:

```
130 REPEAT
140 n$=GET$
150 UNTIL n$>="0" AND n$<="9"
160 PRINT word$(VALn$)
```

One other quick use for GET you might come across is:

```
80 PRINT "Press any key to continue"
90 IF GET
```

As GET is a function that returns a number, it is quite legitimate to use it as part of an expression. In the above case, we are not in the least bit interested as to which key is pressed, so we can simply leave the IF 'open'. This also saves us some memory; IF GET is shorter than, say, a=GET and we do not need to 'waste' a variable – a top programming tip. Of course, if you wanted to be a little more strict, you could use something like:

```
60 PRINT "Press SPACE to continue"
70 REPEAT UNTIL GET=32
```

INPUT is the next stage 'up' from GET. It allows an entire string of characters (or digits) to be entered before continuing. It is a command rather than a function and so is used in a similar way to PRINT.

PRINT A$ will print the string A$ for the user to read, INPUT A$ waits for the user to type in a new value for A$. Fairly obviously you can use INPUT a for inputting numeric data.

As it is common to display some sort of prompt before asking for input, INPUT contains some of the functionality of PRINT. A simple INPUT A$ displays a default '?', which can be overridden if you want it to be by doing something like:

```
INPUT "Month: "A$
```

This replaces the '?' with the string 'Month:'. Adding a comma or semicolon before the A$ puts the '?' back. If you do not want any prompt, you should use:

```
INPUT ""A$
```

The various PRINT modifiers, ', TAB and SPC can also be used, e.g. INPUTTAB(1,2)value, to force input to a specific point on the screen. Multiple variable input is also possible simply by supplying a list of variables, for example:

```
INPUT "Enter x,y:"x,y
INPUT "Name,age,sex:"name$,age,sex$
```

You can either enter the variables one at a time, in which case a simple '?' will be printed for each subsequent variable or you can enter them all at once separated by commas, for example:

```
Enter x,y: 1.2,4.9
```

A few things you should note about INPUT; fairly obviously you cannot type in a string in response to a numeric INPUT.

A value of 0 is given for non-numeric strings or rather as much of the string as possible is converted into a number, (so '2CV' will give a value of 2). This also applies to calculations, so entering 7 - 3 will give a value of 7 not 4, and hexadecimal numbers, such as &34 gives 0 because '&' is not a number. If you want to evaluate calculations at this stage you should input a string and then use Basic's EVAL function which can deal with sums, hex and even program variables.

Also note that strings are stripped of all their leading spaces (but not trailing spaces), so: 'Name? Fred' and 'Name? ~~~Fred' will both return 'Fred', but 'Name? Fred~~~' will return 'Fred~~~' (Fred with 3 spaces on the end). You cannot include commas in strings either (as they are used to separate data in multiple inputs). If you need commas and/or don't want leading spaces stripped, you should use:

```
INPUT LINE A$
```

which returns exactly what was typed to A$. Note that LINE INPUT A$ is synonymous with this.

The final beast, INKEY, has a number of different functions. Like GET it is a function and returns the Ascii value of the key pressed, so it will normally appear in an assignment,

```
key=INKEY(100)
```

However, INKEY can be given a wait time. GET will wait indefinitely for a key, the above example will wait 1 second (100 centiseconds) before giving up and returning a value of -1. Also like GET, there is a string version, INKEY$.

This obviously allows the program to continue running while waiting for input. The listing *Ex-INKEY* shows how the controls might work in a *Space Invaders*-type game. Here, the program waits for a 20th of a second for a key to be pressed, this slows the 'game' down to a manageable speed (try changing the 5 to a 2) so you can see what's going on.

If a negative value is given to INKEY, then a specific key is checked to see if it is being pressed or not. Many games need to allow the player to press more than one key at once, for diagonal movement say, and ordinary INKEY won't cope with this. The only problem with this system is that the values you give to inkey-minus – as it tends to get called – are not at all obvious, for example -99 is for SPACE, -74 for RETURN.

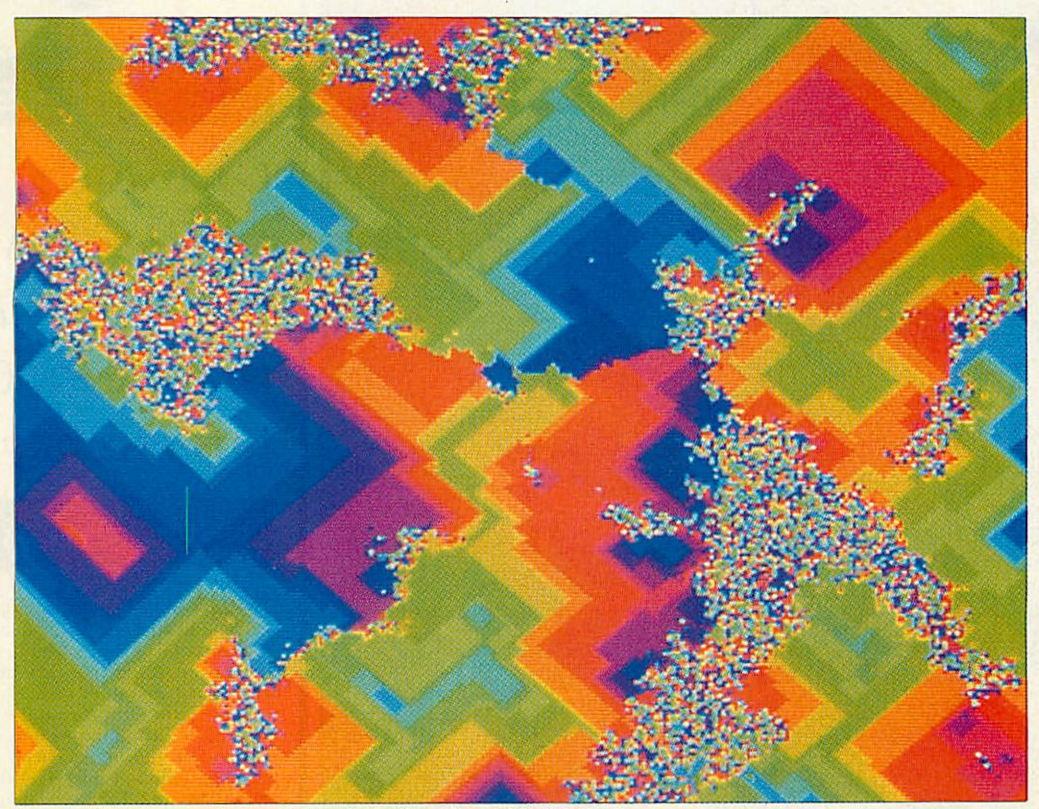
Full lists of the codes needed can be found in most programming reference books. Listing *Ex-INKEY* demonstrates this call's use. One important difference between INKEY and the other methods of input is that it reads the key directly, while the others actually read the key(s) from the keyboard buffer so in:

```
TIME=0:REPEATUNTILTIME>200
key=GET
```

If a key is pressed at any point during the two-second delay, it will be picked up by the GET.

SUMMARY OF INPUT, GET & INKEY

	DATA RETURNED	TIME
INPUT	String/Number	infinite
GET	Ascii	infinite
GET$	Character	infinite
INKEY	Ascii	given delay
INKEY$	Character	given delay
INKEY-	True/False	instant



Squares displays an early stage in the formation of a world of demons



Fractal fun with IFS2

IN DETAIL

Short program *Col256x8* shows how the colours in mode 13 can be arranged into 12 smooth scales of eight colours.

First, Mode 13 is selected, the cursor is switched off and the graphics origin set. Then 12 lots of data are read from the DATA statements at the end. Each lot consists of a value for the red, green and blue constituents of a colour. These are passed to PROCshades which draws a scale.

PROCscale takes the initial settings of R, G and B and displays the bar in blocks of four – four because there are four 'tints' available for each colour. The colour is chosen with the command:

GCOL r%+4*g%+16*b% TINT t%*64

You will see that the bottom two bits of the GCOL value specify red, the middle two green and the top two blue. The remaining two bits available in mode 13 provided in the TINT part of the command are used to alter subtly the colour. The blocks are plotted using RECTANGLE FILL.

When the four possible tints for the current colour have been shown, each of the R, G and B constituents is increased by one. This continues until one of these exceeds maximum intensity.

Dialcodes can be used in two ways. First, you can type in a word and it simply converts it to a number.

Second, you can type in a number and it will display all possible words that could be made. (for example, you can discover that Computer Concepts number is 'MEWED'). Numbers with zeros in are not converted because there is no letter on the zero button.

SQUARE EYES

Program: Squares
Description: Automaton
Author: Robin Owens
Machine: 32-bit
Listing: 235 lines Basic, machine-code

Here's a little automaton from Robin Owens of Farnborough. We actually featured a similar program way back in Risc Revue, *BAU* February 1990. Robin's is faster and prettier though, so we thought it was about time for an update.

First, the screen is filled with randomly coloured pixels. A simple rule is repeatedly applied to each point and soon shifting areas of colour appear. Finally, spirals – called 'demons' by the automaton's inventor – will appear and dominate the screen.

Press S to start and hold down either S or ESC to stop. F will toggle between Fast and Step mode. With the latter a keypress is required to display each new frame. N creates a new, random screen and Q quits. For more details, have a look at *BAU* February 1990.

MORE IFS CODES

Program: IFS2
Description: Some IFS codes for generating interesting fractals.
Author: Duncan Lilly
Machine: all machines
Listing: 109 lines Basic

The Interactive Function System for creating fractal images was explored quite extensively by Gareth Eley in *BAU* August 1992. Regular contributor Duncan Lilly has supplied us with some extra sets of codes for Gareth's program.

The codes that Duncan has supplied have been printed in the new *INFO IFS format, and a new version of Gareth's original program IFS can be found on the yellow pages. Rather than have lots of data at the end of the program, the various codes are now stored in files. Under DFS they should be in directory *I*, under ADFS, *IFScodes*. The new IFS program, *IFS2,* scans this directory and presents a menu of the files found. Selecting a file will then load the appropriate data and plot the fractal. This means that BBC owners can have access to many fractals without running out of memory. The actual plotting 'core' of the program remains as Gareth originally wrote it.

The format of a *INFO IFS file is very simple; it is a straight Ascii text file with lines terminated by a carriage returns or a line feed (Ascii 13 or 10). The first line is the name of the fractal. The second line consists of five values, the first is the fractal type (0 or 1) and the rest are xmin, ymin, xmax and ymax – refer to Gareth's piece for more details. Values are separated by any number of spaces. This allows you to tabulate the file to make it easier to read.

The rest of the file is made up of actual IFS transformations, one per line, separated by spaces. The first entry on a line is the probability of this transformation being chosen (as a percentage). This is followed by transformation data. For type 0 this is a11, a12, a21, a22, b1, b2 for type 1, r, s, theta, phi, h, k. See *BAU* August 1991 for more details. There is one special case, if the percentage on each line is an '=', then each transformation is assumed to be equally likely. A quick glance at the files should make this clear.

According to Duncan, the new codes came from a PC public domain program called *FractInt* along with some minor modifications from Duncan himself; apparently Gareth's program has a bit of fit if the IFS probabilities don't quite add up to one (such as 0.33, 0.33 and 0.33).



"Professor

Our only way to SURVIVE – to send a droid to FERVOUR for the oxygen!

is it possible"

The year is 2100 and you, professor Skitz Patrick, are returning from a mission in search of a planet suitable for human habitation. Earth is being destroyed by ecological disasters brought on by the human race. On returning to Earth you are unable to make radio contact with anyone. All radio frequencies are jammed with the following message which repeats every minute, "Take shelter immediately leave pets behind as they use valuable oxygen, and close your radioactive shelter..."

After close observation of your spacecraft readings you decide that some disaster has occurred since the temperature of Earth has risen dramatically. It occurs to you that it is probably unsafe to return to Earth. Unfortunately your supplies of oxygen aboard the spacecraft are limited. Though unsuccessful on your mission for a planet suitable for human habitation, you did find a source of oxygen on the surface of a planet named Fervour. You head back towards Fervour.

The surface temperature of Fervour is well over the range of your instruments, thus making oxygen retrieval very difficult. After several days of experimentation with oxygen retrieval you have come up with a spherical droid with as few moving parts as possible. It is impossible for you to get near Fervour because of the sheer heat, thus you must control your droid via a high frequency microwave link.

Radiating out from Fervour there are several thousand bands of varying pure energy. Your droid uses this energy to drive itself. Unfortunately, some areas have excess energy and cause strange effects. Luckily, the frequencies of radiation of the electromagnetic waves radiated from these areas are within the visible spectrum. This means that you are able to see what areas of energy your droid is over.

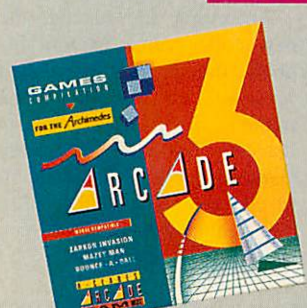
PRICE – £24.95 (inc VAT)



98 Middlewich Road, Rudheath, Northwich, CHESHIRE CW9 7DA.
Telephone: 0606 48511 Fax No: 0606 48512

2 GREAT GAMES FROM CLARES

• ARCADE COLLECTION •

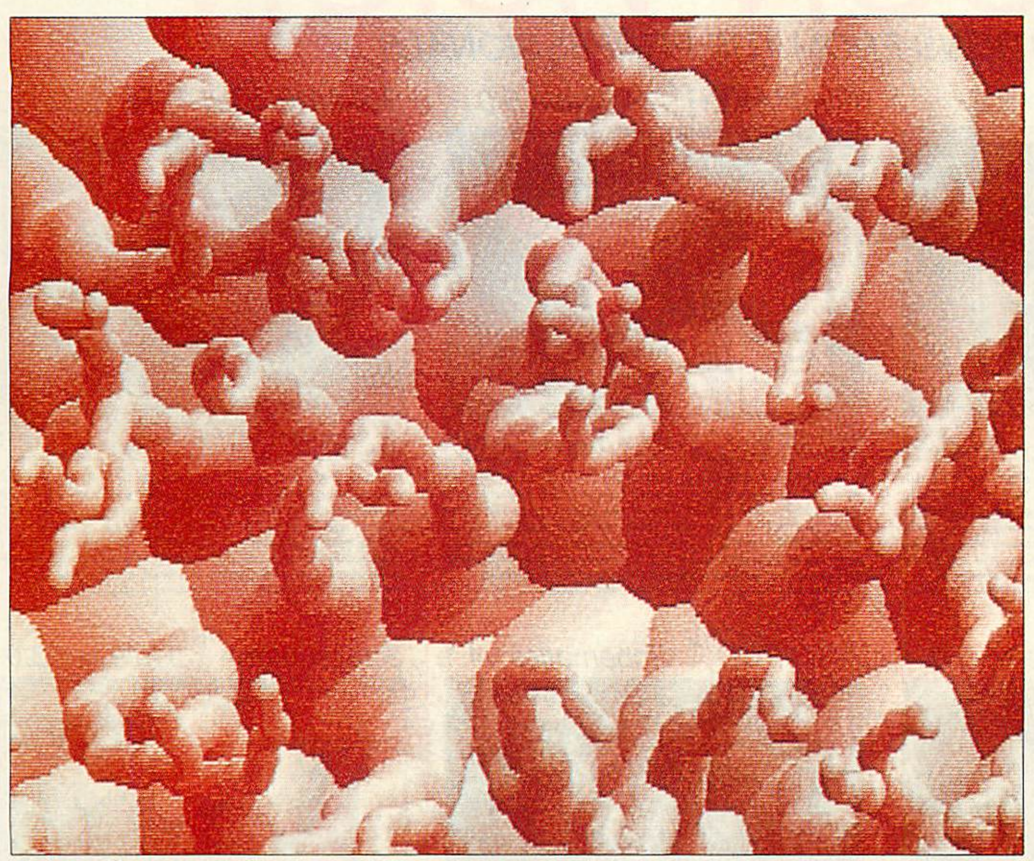


ARCADE 3 —3 classic arcade games in one pack: ZARKON INVASION, MAZEY MAN, BOUNCE-A-BALL.

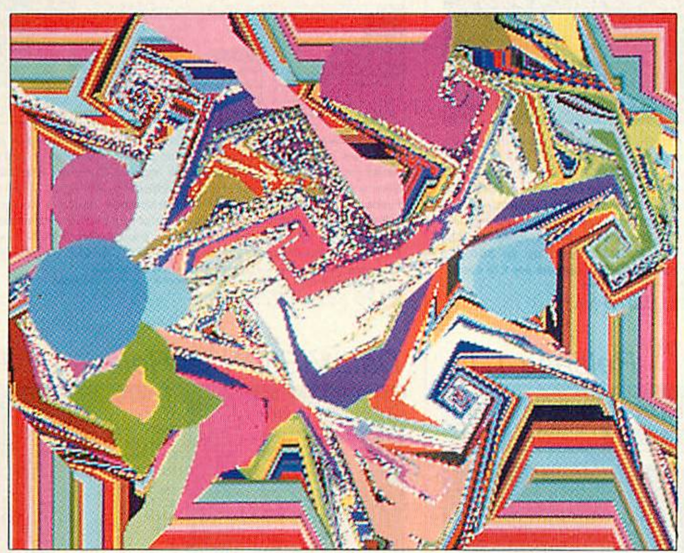
OVERLOAD —The infuriating Mega Monster Experience.

Both for an amazing £15.50 each





Tentacles: 'The most disgusting picture you have ever seen on a computer screen'



Some people just can't resist stirring things up

GOOD VIBES

Programs: Stir, Ball12, Tentacles
Description: Graphic demos
Author: Jan Vibe
Machine: 32-bit only
Listings: 25, 50, 95 lines Basic

*INFO really wouldn't be *INFO without a mind-expanding graphical offering or two from our most regular regular, Jan Vibe.

Stir simulates the effect of stirring paint. Colour is splashed on randomly and plot commands to copy rectangles are used to stir these colours up. The effect is actually produced by dividing the screen up into squares. The contents of each square are moved diagonally.

Adjacent squares are moved in different directions, so the screen is 'stirred'. When rectangles on the edge of the screen are moved inwards the gaps on the edge are filled using the current background colour and this is changed randomly.

Ball12 creates a 'softly shaded' ball, and subsequently Jan has employed this technique in a number of his latest programs. The ball is created in Mode 12, using sixteen colours which have been changed to a smooth scale of greys. The size of the ball can be changed by altering the value of r%.

Tentacles is the first of Jan's programs to use the technique illustrated by *Ball12*. Jan describes his Frankensteinian creation:

'This program may well draw the most disgusting picture that you have ever seen on a computer screen. It all started as an experiment. What would happen if you painted a randomly curved line with a sprite shaped like a softly shaded ball gradually growing smaller and smaller? It looked very strange.

'I then decided that I would try to paint a screenful of these things. The picture looked somehow organic, and I wondered how it would look if it was flesh-coloured. Well, you can see the result here.'

Jan uses OS_SpriteOp 52 (we've seen what it can do before in *INFO) to reduce the size of the ball sprite.

ADJUST YOUR SET

Program: TVControl
Description: Desktop colour, brightness and contrast adjuster.
Author: Phillip Rogers
Machine: 32-bit
Listing: 70 lines Basic

In the September issue, we featured a short program by Mark Brundale that allowed you to alter the brightness and contrast of the screen in software. Phillip's program is based on Mark's but has two important additions. Firstly, it also allows you to adjust the colour, and secondly, it is a fully multitasking, Risc OS compliant application.

Clicking on the *TVcontrol* icon brings up a window with three sliders that adjust the brightness, contrast and colour. Clicking on the full size icon extends the window and adds eight 'colour' icons. These set what the colour slider does. For example, clicking on Green makes the colour slider slide from colour to shades of green and so on. When you're bored with twiddling with your palette, there is a menu which allows you to reset the palette to normal and/ or quit the application.

The program even manages a modicum of success in 256-colour modes, but don't expect all the colours to change quite as you'd expect them to.

Phillip has supplied two listings. The first, *MakeApp,* generates *!Boot* and all the other necessary files and *!RunImage,* which is the body of the program and should be saved within the *!TVControl* directory.

REFLECT ON THIS

Program: Reflection
Description: Graphic demo
Author: David Llewellyn-Jones
Machine: 32-bit only
Listing: 105 lines Basic

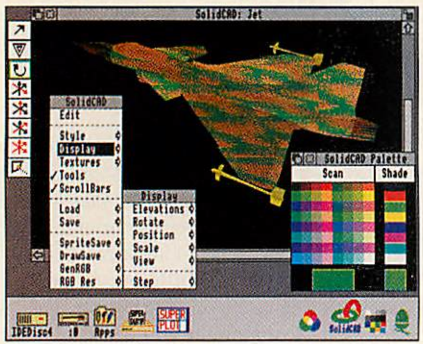
David Llewellyn-Jones of Thundersley supplies this nice example of real-time graphics. A short piece of machine-code is used to produce a watery reflection of whatever is drawn in the top half of a Mode 13 screen.

A simple 'moon' is plotted as an example and you can use the mouse to doodle in the top

SILICON VISION

DESKTOP SOLUTIONS FROM THE PROFESSIONALS

SolidCAD ® Release 5.0



The most comprehensive 3D CAD package available for RISC OS. It is capable of generating the fastest 3D Rendering for any design. The Jet Fighter image above was rendered in less than 2 seconds. Includes a 3D Design Editor for drawing in Plan, Side, and Front Elevations, Texture Mapping, Printer & Plotter Drivers, 24 bit RGB output for the highest quality images, and a Realtime Graphics Language for the fastest programmable animation.
"very easy to use and extremely well documented if you get stuck" - Acorn Computing.

£99.95

FilmMAKER ® Release 5.0



The complete Interactive 3D Animation System. Ideal for users who wish to explore their creative talents without resorting to programming. FilmMAKER® boasts the fastest frame rendering rates, less than 2 seconds/frame for the Space Shuttle, and the smoothest flicker-free playback for animating your masterpiece. Fully compatible with SolidCAD® for designs & SolidsRENDER® for ray tracing, animation Oscars are now within your reach.
"Specifying the movements of objects is a dream" - BBC Acorn User.

£79.95

SolidsRENDER ® Release 5.0



The most advanced Ray Tracing package for RISC OS. It includes a unique Accelerated ray-tracing capability for the fastest Photo-realistic rendering possible. Use standalone or import SolidCAD® designs and FilmMAKER® flightpaths for Object orientated design and Animation capabilities. SolidsRENDER® also provides the most comprehensive object properties. Why wait hours when you can now produce better results in a fraction of the time.
"the fastest ray-tracer...outputting the highest quality images" - Archimedes World.

£99.95

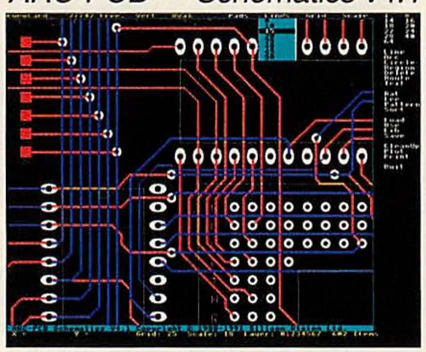
SolidTOOLS ® Release 5.0



The first fully integrated environment for 3D CAD, Photo-realistic Rendering, Interactive animation, Texture mapping, Programmable animation, 24 bit RGB output and high resolution hardcopy to printers and plotters. The system provides 3D CAD facilities for Architectural, Engineering, Interior design and Teaching CDT using the industry standard 3rd Angle projection for drawing in Elevations. The package includes SolidCAD®, FilmMAKER®, and SolidsRENDER® offering a turnkey solution satisfying all your conceptual design, and presentation requirements.
"Puts Silicon Vision at the Top of the CAD market" - Archimedes World.

£275

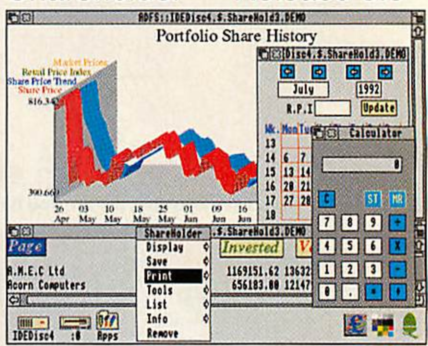
ARC-PCB ™ Schematics v4.1



The most comprehensive Electronic Design Automation tools available for RISC OS. The range starts at ARC-PCB v1.7 for purely Digital PCB layout, graduating to ARC-PCB Professional v3.1 for combined Analogue/Digital PCB layout and ultimately to ARC-PCB Schematics v4.1 providing both Circuit Schematic drawing and all PCB layout features in one design interface. All versions include, Automatic Routing, Multiple layers, Component pulling, On-line Help, Drivers for Printers & Plotters, and up to 300,000 components. GerberPLOT & ExcellonDRILL options are £75 each.
"Performs up to professional standards." - BBC Acorn User.

£125 (v1.7), £275 (v3.1), £375 (v4.1)

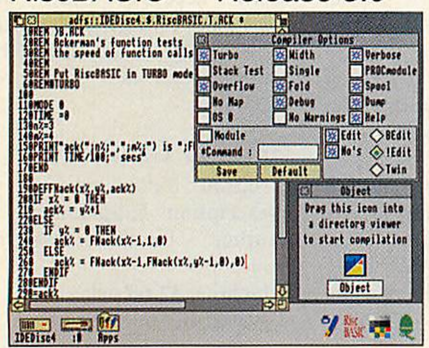
Shareholder ™ Release 3.0



The complete share holder management systems providing all the facilities needed to automate your portfolio available in two versions. ShareHolder v2.0 features include Company statistics, Share holdings, Transaction processing, Portfolio history, Forecasts, Dividends due, Share price updates, built-in Calculator, Calendar and Hardcopy facilities for total integration. ShareHolder Professional v3.0 also includes Share trends, Retail Price index, General Market Prices and links to CEEFAX, ORACLE & PRESTEL.
"An excellent concept, the first professional share related package ... well thought through ... remarkably comprehensive" - Archimedes World.

£125 (v2.0), £275 (v3.0)

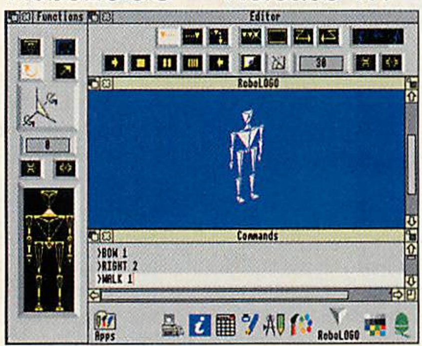
RiscBASIC ™ Release 3.0



The complete software development system for producing sophisticated RISC OS applications. The unrivalled RiscBASIC compiler allows you to use the interactive development environment of interpreted BASIC for fast prototyping and interactive testing followed by source code security and the fastest machine code performance of final compilation.
"If you are looking for THE compiler to go for, and are confused about which one deserves to win the very public battle that has been raging in the advertisements, well my preference is for RiscBASIC" - RISC USER.
"Produced significantly more efficient code" - Acorn Computing

£99.95

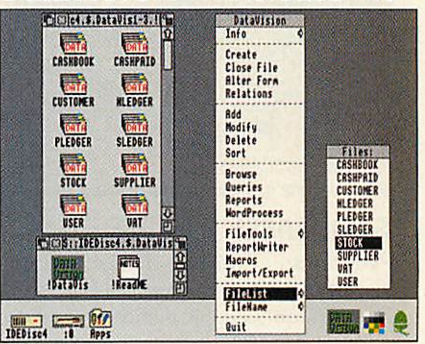
RoboLOGO ™ Release 1.1



RoboLOGO provides the ideal introduction to computing. This new extension to traditional LOGO provides three dimensional control of an articulated humanoid or animal figure based on the standard LOGO language. Natural commands such as 'Walking', 'Bowing', and 'Picking', etc are automatically represented graphically by natural movements of the 3D figure which is readily understood by students. The traditional Turtlegraphics and 3D Glider features are also supported for students to explore their school work further.
"Takes Turtlegraphics and LOGO into a new dimension" - Educational Computing.

£49.95

DataVISION ™ Release 1.3



The only true relational database management system available for RISC OS. Capable of performing relational updating of databases as well as the usual relational reporting features. This is all possible without resorting to programming. For advanced users a reports programming language is provided. Also includes Wordprocessing, Mailmerging, Label printing, Reports, Queries, Formula entry and Validation. Built-in security measures stop multi-tasking during relational database operations to maintain database integrity in the event of other programs crashing. Includes an accounting example to highlight DataVISION's power.
"DataVision is a good, solid relational database" - Computer Shopper.

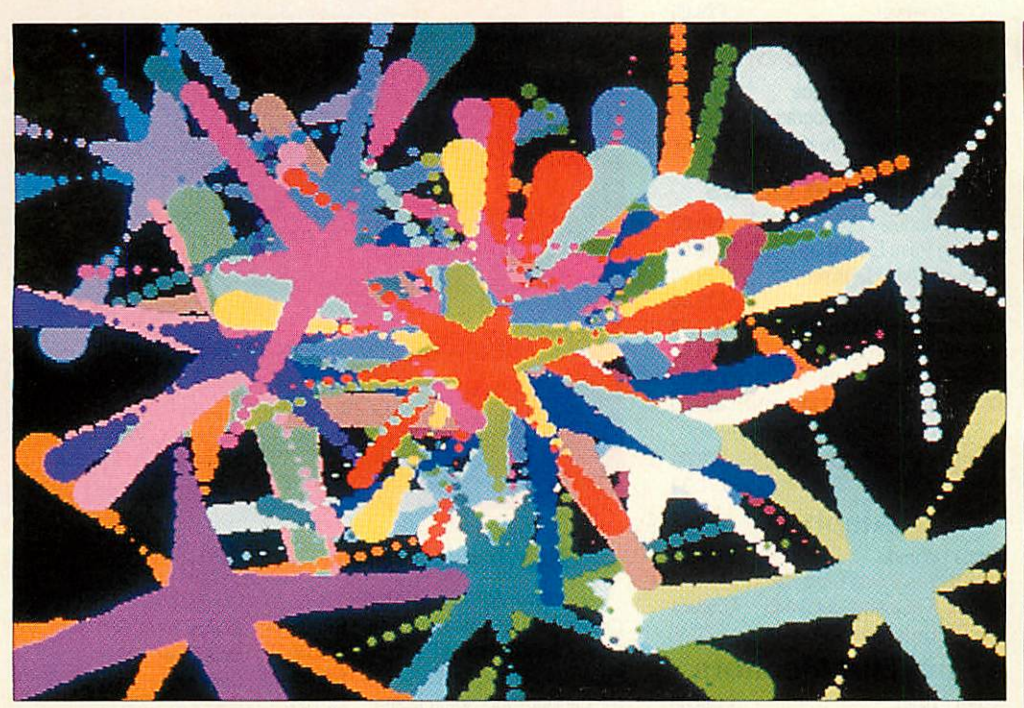
£99.95

All prices include VAT & Carriage. Access, Visa, Eurocard, MasterCard & American Express accepted.

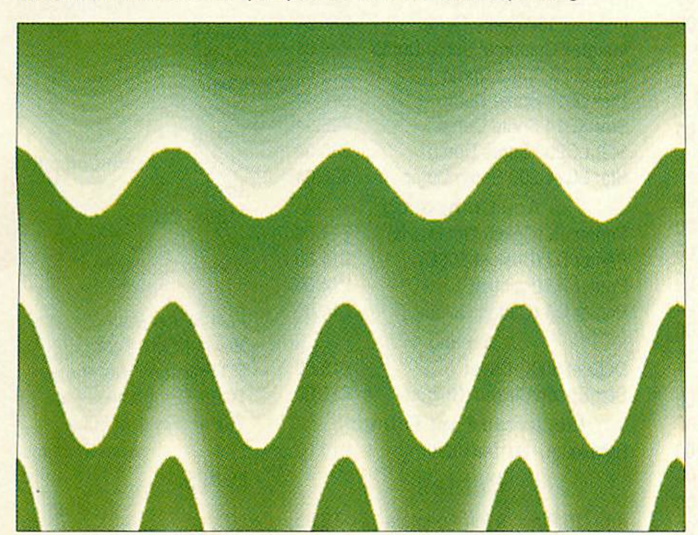
SILICON VISION LTD, SIGNAL HOUSE, LYON ROAD, HARROW, MIDDLESEX, HA1 2AG, UK. TEL: 081-861 2173
FAX: 081-427 5169. TELEX: 918266 SIGNAL G.

Free DemoPACKS ™

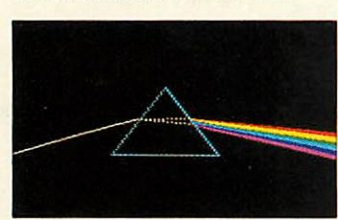
Full functional demo versions of all software with documentation are available on request for your evaluation. For your free DemoPACK simply send a Stamped Addressed Envelope (12"x8.5") with 54p prepaid postage per DemoPACK for the UK. Overseas requests should enquire for our local distributors.



Never mind the Pollocks, Splat puts the action back into painting



Screen meltdown time with Goo



BAU's homage to the Floyd

half of the screen while the program is running. Select draws with a thick line, Menu draws with a thin line, or selects a colour from the line at the top of the screen.

Adjust draws in black (for deletion). Press R to restore the colour line at the top of the screen in case it accidentally becomes deleted. Press S and click at the top of the screen to save it as *Water1* in the current directory.

ONE-LINE CORNER

We have five excellent one-line masterpieces for your delight this month. The first pair come from *BAU*'s own Mat Tizard. *Explodes* does just that. *TheQuest* is a one-line adventure game – 'The quest for the saga of the legends of Voolb'. It comes complete with a novella, which appears on the monthly disc. Mat advises:

'Fly around, bouncing off the walls and have a hoopy time. (But be careful not to be sucked into the swamp of eternal peril.) The more mouse buttons you press, the more thrust is generated.'

From David Llewellyn-Jones come two more shorties – *Splat* and *Goo* – which splat and goo respectively. You can fathom out the former's mouse control for yourself. You'll no doubt be able to use it to produce an uncannily realistic picture of St Paul's Cathedral.

Finally, Duncan Lilly has come up with *Darkside*, a welcome contribution to our absurdly occasional series of one-line album covers. (Remember Gary Quested's interpretation of Joy Division's *Unknown Pleasures* in *BAU* November 1991?). All other such offerings will be treated with the reverence they deserve.

COLOUR SCHEME

Programs: Col256x12, Col 256x8
Description: Graphic demos/ utilities
Author: Bryan Creer
Machine: 32-bit
Listings: 35, 45 lines Basic

As a short follow-up to his colour demos from last month, here are two short listings by Bryan that display 'nice' colour scales in 256 colours.

Six good 12-colour scales are produced by *Col256x12*. These run from black to the three primary colours (red, green and blue) and the combinations thereof (cyan, magenta and yellow).

Col256x8 shows how 12 scales of eight colours can also be produced. This program is the subject of this month's *In Detail* box.

MEET THE CHALLENGE

There has been an excellent response to September's Maze challenge. We'll feature the winners in next month's *INFO where we can do them full justice. Thanks to all who wrote in. There will be another challenge soon . . .

*QUIT

Listings, applications, hints, tips and requests are ever welcome.

All listings should be on disc together with a description. A stamped, self-addressed envelope will ensure the return of your disc.

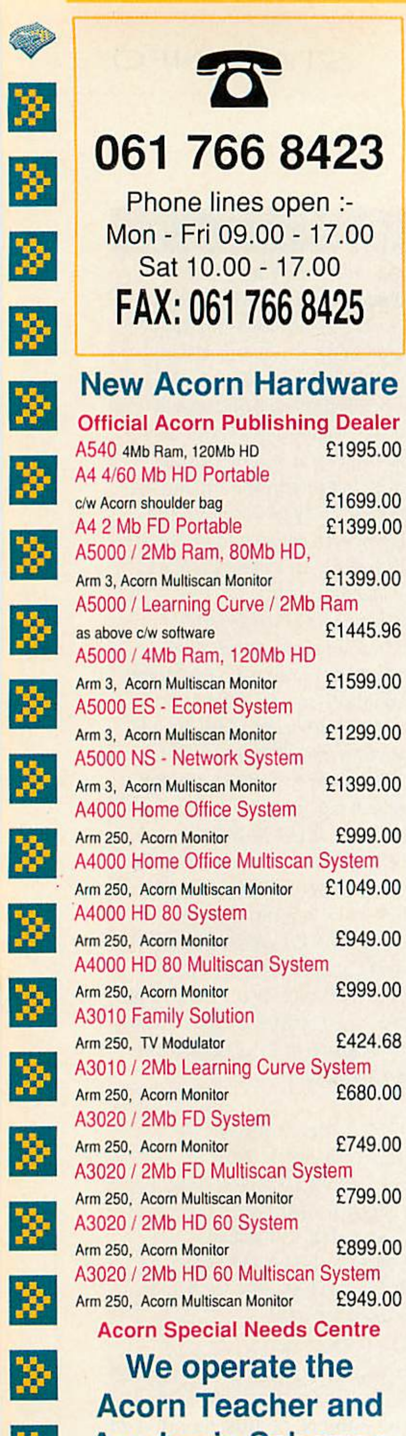
Send your submissions to: *INFO, Acorn User, Redwood Publishing, 101 Bayham Street, London NW1 0AG.

BIG TIPS

Someone known only to us as Gwendolin has pointed out an interesting feature of the A5000. Apparently, if you type the letters RMTMD while the startup screen is displayed, pictures of the developers are shown. Gwendolin says this feature can be tricky to produce and turning the cache off may help. We believe this feature only works with Risc-OS version 3.0 – there may be a similar feature in 3.1 – does anyone know how to get it?

In 256-colour modes (how many times must we have begun with those words) there is a considerable difference between the sort of numbers used in a GCOL TINT command and those suitable for 'poking' onto the screen. When using ECF fill patterns (see the June *INFO for more details) you must define them using the 'pokeable' version. Quintin Parker (age 12) supplies the following short procedure which takes GCOL and TINT values for a colour and returns a byte suitable for inclusion in a VDU 23,2-5 pattern definition.

```
DEF FNpattern(col%,tint%)
LOCAL a%,b%,c%,d%
a%=(col% AND %100001)<<2
b%=(col% AND %011110)<<3
c%=b% AND %10000000
IF c%>0 THEN b%=b% AND
 %01111111:b%=b% OR %1000
b%=a% OR b%
d%=tint%>>>6
=b% OR d%
```



061 766 8423

Phone lines open :-
Mon - Fri 09.00 - 17.00
Sat 10.00 - 17.00

FAX: 061 766 8425

New Acorn Hardware

Official Acorn Publishing Dealer

A540 4Mb Ram, 120Mb HD	£1995.00
A4 4/60 Mb HD Portable c/w Acorn shoulder bag	£1699.00
A4 2 Mb FD Portable	£1399.00
A5000 / 2Mb Ram, 80Mb HD, Arm 3, Acorn Multiscan Monitor	£1399.00
A5000 / Learning Curve / 2Mb Ram as above c/w software	£1445.96
A5000 / 4Mb Ram, 120Mb HD Arm 3, Acorn Multiscan Monitor	£1599.00
A5000 ES - Econet System Arm 3, Acorn Multiscan Monitor	£1299.00
A5000 NS - Network System Arm 3, Acorn Multiscan Monitor	£1399.00
A4000 Home Office System Arm 250, Acorn Monitor	£999.00
A4000 Home Office Multiscan System Arm 250, Acorn Multiscan Monitor	£1049.00
A4000 HD 80 System Arm 250, Acorn Monitor	£949.00
A4000 HD 80 Multiscan System Arm 250, Acorn Monitor	£999.00
A3010 Family Solution Arm 250, TV Modulator	£424.68
A3010 / 2Mb Learning Curve System Arm 250, Acorn Monitor	£680.00
A3020 / 2Mb FD System Arm 250, Acorn Monitor	£749.00
A3020 / 2Mb FD Multiscan System Arm 250, Acorn Multiscan Monitor	£799.00
A3020 / 2Mb HD 60 System Arm 250, Acorn Monitor	£899.00
A3020 / 2Mb HD 60 Multiscan System Arm 250, Acorn Multiscan Monitor	£949.00

Acorn Special Needs Centre

We operate the Acorn Teacher and Academic Schemes

Please call for free information pack

A540 Upgrades

4Mb Ram Upgrade	£369.00
Taxan 795 VIDC Modes Disc	£7.50
Technical Reference Manual	£65.00

A5000 Upgrades

2Mb Ram Card	£110.00
Dust Cover (One piece)	£12.95
Technical Reference Manual	£65.00

A4 Upgrades

A4 2 MB RAM Upgrade	£110.00
A4 60 MB HD Upgrade	£350.00
A4 Battery Pack	£50.00
A4 Econet Upgrade	£50.00
A4 Shoulder Bag	£35.00
A4 Technical Reference Manual	£65.00

A3000 Upgrades

1 Mb Ram A3010 (2Mb in total)	£49.00
1 Mb Ram (2 Mb in total)	£55.00
4 Mb Ram	£139.00
20 Mb Int Hard Disc (IDE)	£199.00
5.25" External f/disc buffer	£39.00
Serial Upgrade	£19.00
User & Analogue Podule	£46.00
User & Midi Podule	£46.00

A400 Upgrades

1 Mb Ram	£35.00
2 Mb Ram	£65.00
3 Mb Ram	£99.00
5.25" Ext. floppy disc int.	£39.00
Econet Module	£46.00
VIDC Enhancer	£29.00

RISC OS 3

RISC OS 2 -> 3 Upgrade	£41.70
RISC OS 3 -> 3.10 Upgrade	£16.17
RISC OS 3 Hardware Kit A300	£25.00

Expansion Cards

Econet Module	£46.00
Floating Point Expansion Card	£449.00
Hawk V9 Video Digitiser	£199.00
I/O Expansion Card	£79.00
Midi Upgrade to I/O Card	£27.00
Midi Expansion Card	£65.00
ROM Expansion Card	£45.00
SCSI Expansion Card (Acorn)	£229.00

ROMBO Colour Digitisers

A3000 inc. podule housing	£72.30
A400 / A5000	£72.30

Aleph 1

Arm 3 Upgrade	£199.00
386 PC Expansion Card 1Mb	£495.00
386 PC Expansion Card 4Mb	£595.00
486 PC Expansion Card 4Mb	£Call

Standard Monitors

Acorn Colour	£199.00
Microvitec Cub 3000	£199.00
Philips Mono (Green)	£85.00

All monitors come with free lead. State type of computer when ordering.

Multiscan Monitors

Taxan 795 Multivision	£449.00

Floppy Disc Drives

5.25" Single 40/80 no psu	£95.00
5.25" Single 40/80 with psu	£109.00
5.25" Dual 40/80 no psu	£185.00
5.25" Dual 40/80 with psu	£199.00
3.5" Single with psu	£85.00
3.5" + 5.25" 40/80 with psu	£209.00

Printers

Canon Bubblejet BJ-10e	£189.00
Canon BJ10e inc. turbo driver	£219.00
Sheetfeeder for BJ-10e	£59.00
Canon BJC800 (col.) inc. s/w	£1695.00
Citizen 120D+	£114.00
Citizen Swift 9	£169.00
Citizen Swift 240	£249.00
Colour Kit for above	£39.00
Citizen Swift 200	£199.00
Citizen Swift 200 Colour	£229.00
Star LC20	£130.00
Star LC200 Colour (9 pin)	£189.00
Star LC24 - 200	£219.00
Star LC24 - 200 Colour	£259.00
Integrex Colourjet 132	£519.00
HP Deskjet 500	£339.00
HP DeskJet 500C	£449.00
HP Paintjet	£599.00
Laser Direct (LBP4 Hi Res.)	£849.00
Laser Direct (LBP8 Hi Res.)	£1279.00

Econet

Broadcast Loader	£65.00
Level 4 AUN Software	£399.00

Scanners

Flatbed A4 256 Grey SCSI (CC)	£849.00
Flatbed A4 with SCSI card	£749.00
Scan Junior Scanner 256	£199.00
Scanlight Senior Scanner A4	£289.00
Sheet Feeder for above A4	£135.00

Fax

Fax Pack (CC)	£259.00

FREE

Acorn - 3 Years On Site Warranty on all Acorn Hardware* purchased from Dabhand Computing

*excludes Acorn Purchase Schemes / Education Schemes A4 Portable / Acorn Printer

Printer Drivers

Midnight Graphics

Citizen Swift 9 Sprite Dump	£26.04
Citizen Swift 24 Sprite Dump	£26.04
Epson 24 Sprite Dump	£26.04
HP Deskjet 500C Sprite Dump	£26.04
HP Paintjet Sprite Dump	£26.04
Integrex 132 Sprite Dump	£26.04
Integrex Colourcel Sprite Dump	£26.04
Juki 5520 Sprite Dump	£26.04
Star LC10 Sprite Dump	£26.04
Star XB24 Sprite Dump	£26.04
Star LC200 Sprite Dump	£26.04
Star LC24-200 Sprite Dump	£26.04

Ace Computing

Printer JX (Colour Dot Matrix)	£14.00
Printer DJ (Deskjet 500C)	£14.00
Printer PJ (Paintjet)	£14.00
Printer CA (Canon Colour)	£14.00

Beebug

Deskjet 500C Driver	£15.00
Star/Epson/Citizen (Colour)	£15.00

Electronic Font Foundry

BubbleJet - BJ10e/130e	£10.00

Cables

Arc - 15 Pin to 9 Pin Adaptors	£9.95
Arc - Monitor - 8833 inc sound	£8.65
Arc - Monitor - 8833 II inc sound	£8.65
Arc - Parallel Printer Cable	£5.00
Keyboard Extender 400/500	£7.50
Mouse Extender	£7.50

BBC Software

Blob 1	£18.00
Blob 2	£18.00
Chick Chase (80 Track Only)	£15.00
E-Type	£13.00
Master Break	£10.39
Mini Office II	£17.35
Modem Master	£11.26
Play it Again Sam No's 1 - 16 ea.	£11.95
Reversals (80 Track Only)	£20.00
UIM	£14.95
Where's Blob	£18.00
White Knight	£18.00

Master Compact

Play It Again Sam No's 1 - 16 ea.	£13.00
UIM	£14.95

Archimedes Software

4 Mation

Chameleon	£25.00
Craftshop 1	£29.00
Craftshop 2	£29.00
Jiglet	£25.00
Jigsaw	£27.00
Poster	£75.00
SmArt	£50.00
SmArtFiler	£32.00
Snippet	£26.00
Vector	£75.00

Ace Computing

ArcLight	£43.00
Euclid	£40.00
Mogul	£17.00
Splice	£26.00
Tween	£26.00

Acorn Computers

1st Word Plus	£65.00
ANSI C (V 3)	£125.00
Acorn Desktop Publisher	£109.00
Desktop Assembler (V 2)	£119.00
Desktop C (V 4)	£185.00
Font Starter Pack	£39.00
Newhall Font Pack	£39.00
PC Emulator / Free Shareware	£95.00
TCP/IP Programers Pack	£50.00
TCP/IP Protocol Suite	£199.00

Arxe Systems

MultiFS	£27.00

Beebug

DeskEdit	£21.00
Desktop Thesaurus	£19.00
Hard Disc Companion 2	£45.00
Hearsay II	£69.00
Ovation	£85.00

Brilliant Computing

Everyday Signs	£20.00
Joystick Games	£20.00
Streetwise	£20.00
Switch On	£20.00
Switch On Actions	£20.00
Teds Adventures	£20.00

Clares Micro Supplies

Artisan 2	£45.00
Illusionist	£79.00
Interdictor	£10.00
Interdictor II	£23.00
ProArtisan	£70.00
Render Bender 2	£99.00
Rhapsody 2	£45.00
Schema	£90.00

Coin Age

Pesky Muskrats	£14.00

Colton Software

Pipedream 3	£105.00
Pipedream 4	£148.00

Computer Concepts

AvanteGarde Font Pack	£24.00

ROUND THE **BEND**

Michael Attenborough gives you the means to take control of your Draw files

Supplied free with every Archimedes is an extremely powerful and versatile program; *Draw*. It lets you create pictures which are stored as a description of how to draw the picture, unlike sprites, which are just a list of what colour each pixel should be. In the yellow pages are some programs which let you manipulate *Draw* files to get calligraphic effects, to distort your pictures to almost any shape, or to curl them around part of a circle.

If you have *FontDraw* or *Draw+*, which are public domain, or *Draw3*, you can convert text into a drawing, and apply any of these effects to text. For the programmers among you, there is a set of procedures and an example program showing how to create a *Draw* file from Basic, details of how a *Draw* file is set out, and how to make your own programs to alter *Draw* files.

DRAW FILES

All the data in *Draw* files is in word-sized chunks which can be easily handled by the processor, so *Draw* can just load the file into memory and use it as it is. A draw file consists of a header followed by a list of objects. An object can be something like a sprite, a piece of text, a set of lines and curves (called a path), or a group containing several objects.

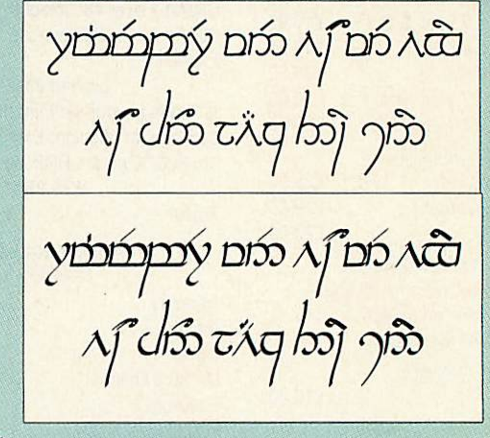
An object always starts with a number identifying the type of object. This is followed by the length of the object in bytes. This is useful, because it means that a program can ignore objects that it does not recognise, just by skipping forward that many bytes. After the length word the format of the data depends on the type of object, but most types have bounding box data next. This describes a box which contains the object completely, by giving the coordinates of its bottom left and top right corners.

Draw file coordinates are four-byte integer values. The units have a specific meaning: there are 640 in a printer's point, which is 1/72in: this means there are 46080, or &B400 in hexadecimal, in an inch. This is very high accuracy, but still allows for distances up to several miles to be represented. A bounding box, then, takes up four words; 16 bytes. Before we can create a *Draw* file, though, we need the format of the header information. This consists of ten words:

- One-word identifier: &77617244 – &44,&72,&61,&77 is Ascii for 'Draw'
- Two-word version number: The 'high' and 'low' parts of the version number. These are 201 and 0 for the original version of *Draw*.
- Three-word source name: The name of the source of the program in Ascii – 12 bytes or less in length, and padded to 12 bytes with spaces.
- Four-word bounding box: A bounding box, as described above, which contains the whole of the picture.

USING DRAWITALIC

DrawItalic is not a program which makes drawings lean sideways: 'Italic' refers to an italic pen. I was trying to make a set of characters that looked as if they were drawn with a nib pen, so that the thickness of the line depended on its angle. I wasn't going to be be using a lot of text, just some display pieces, so I used *Draw* rather than grappling with *FontEdit*. I soon found that it was a lot of work to get a character to look right, so I wrote a program which does all the work of getting the thickness to vary, so that all I need to supply to make the letter is the path along which the pen moves.



DrawItalic effectively converts pencil writing (top) into nib pen writing (bottom); you can specify the dimensions and angle of the pen to give very realistic-looking calligraphy.

When you run *DrawItalic*, it will first ask you for the filename of the source *Draw* file and a filename to save the result under. The program next needs to know the angle of the pen, the width of the nib, and the nib thickness. You have the option to make the width of the nib the same as the width of the line in the source file. This lets you get some idea of how wide the the nib will be before you start; allows you to have a mixture of nib widths in one file; and lets you do only part of a file, as lines whose width are set to 'thin' will be left unchanged. Your other option is to enter a nib width which will be used for all lines. You enter this as a number followed by the letters 'pt', 'in', 'mm' or 'cm' to specify the units.

The nib thickness is given as a fraction of the nib width, between 0 and 0.5. This sets how thick the line will be when the pen is moving sideways.

For a 'ribbon' effect, try using a wide nib, then setting the fill colour to white after processing the file.

USING MAKEDRAW

There are many reasons for making a *Draw* file from Basic: you can make drawings to exact measurements, draw according to formulas or lists of data: you could make graphics programs output to *Draw*, so that your printouts have high resolution and take advantage of the full range of printer drivers with 64 grey scales. *MakeDraw* provides a set of procedures to simplify the production of *Draw* files, and gives a demonstration of how to use them. Start with PROCdraw_start to open a file and output the header data, and call PROCdraw_end when finished. Paths are started with PROCpath_start, which sets the start coordinates, line width, line colour and fill colour, then use PROCpath_draw, PROCpath_move and PROCpath_bezier to create the path. Do not forget to call PROCpath_end at the end.

Groups are defined with PROCgroup_start and PROCgroup_end, and can be nested.

PROCsprite(X,Y,W,H,fn$,sn$), puts a sprite in the drawing at coordinates (X,H), with width and height given by W and H. Variable fn$ is the name of the sprite file containing the sprite, and sn$ is the name of the sprite.

You can put text in the drawing with PROCtext: the font to use is referred to by a number, and the font table created by PROCfonttable at the start of the file relates font numbers to names. *MakeDraw* has the list of fonts in DATA statements, which you can add to if required. You can leave out the font list by not calling PROCfonttable.

USING RESHAPE AND DRAWCURL

Reshape and Drawcurl are similar to each other; they both manipulate the coordinates of the paths in a *Draw* file. In *Reshape*, you give the program a pair of lines which will become the top and bottom of the original picture. This gives a lot of flexibility in the effect: you can make the picture bulge, squash in the middle, lean backwards, or even tie it in a knot. The shape is defined by another *Draw* file, containing just two lines. These lines can have several segments, which can be any mixture of lines and curves. The lines should be drawn with the start where you want the left-hand end of the picture to go, and the end where you want the left. The line for the top should be created first: if the result is upside-down, select the top line in the shape file and use the menu option to put it to the back.

When you run *Reshape*, the program will ask you for the filename of the *Draw* file to be reshaped, and the Draw file containing the new shape. It will then ask for a filename to save the result under. The last question is a value for minimum segment length. If a long line is altered simply by changing its end coordinates, the middle of the line will not follow the bends in between. If you give a value for minimum segment length, long path segments will be split into several Bezier curves before reshaping. Do not give too small a value, though, because this will produce a large – and slow to draw – output file.

DrawCurl is similar but only produces one effect: curling the picture around an arc of a circle. Instead of asking for a shape-defining file, the program lets you choose a range of angles with the mouse, and asks for the radius of the circle wanted.

These programs have no effect on pieces of text in the source *Draw* file: to get distorted text, you need to first use the text-to-path option in *Draw+* or *Draw3*, or use *FontDraw*. You can also get other effects by giving the converted text a line colour, changing its fill colour or widening the lines. You could even pass the outlines of the text through the *DrawItalic* program for an unusual effect.

Draw File (top) combines with Reshape lines (middle) to give distorted result (bottom)

DRAW+ AND DRAW3

Draw+ and *Draw3* are both enhanced versions of *Draw*: *Draw+* is a public domain program, and *Draw3* is Acorn's new version of *Draw*, supplied as part of Risc OS 3. Both of these programs include keyboard short-cuts that make the programs much quicker to use, and a built-in text-to-path facility, which is very useful when using *Reshape* and *DrawCurl*.

Text can be inserted into a drawing, you can alter its positioning, size and font, and even edit the text itself (a feat that was impossible under the old *Draw*), and then convert the text into a set of drawings. With *FontDraw*, you have to import the converted text by dragging the *Draw* file the application produces onto a *Draw* window.

Both programs use additional types of object to store grid settings, zoom etc. for the file: the programs will not recognise these objects, and so they will automatically copy them, unchanged.

Draw+ also supports multi-level drawings, locked and hidden objects, and it stores the level and other data for an object in the object type word. For a *Draw+* file, the object type is the lowest byte in the object type word, and is obtained by ANDing with &FF. The programs ignore any additional data in the file and leave it unchanged.

Draw 3 has a builit-in text-to-path facility that works well with Reshape and Drawcurl

After this is a list of objects in the order they are drawn in. The object types are as follows:

Number	Type	Bounding box
0	Font table	No
1	Text	Yes
2	Path	Yes
5	Sprite	Yes
6	Group	Yes
7	Tag	Yes
9	Text area	Yes

There is no room here to describe all the types of object in full: a complete description may be found in Appendix E of the *Risc OS Programmer's Reference Manual.*

The most important types of objects, for our purposes, are paths and groups. Groups are simple: after the bounding box, there is a list of objects. There is nothing to mark the end of the group: the end is worked out from the length word of the group object.

Path objects contain a header specifying the attributes of the path (line colour, fill colour, line width and style, dot pattern and so on), then a list of move and draw commands, terminated by a 0. The first command should always be a move, which is given the code 2, and followed by one pair of coordinates. The full list is:

0	end of path
5	close path
2	X Ymove to (X,Y)
8	X Yline draw to (X,Y)
6	XC1 YC1 XC2 YC2 XE YE Bezier curve to (XE,YE), using control points (XC1,YC1) and (XC2,YC2)

Remember each code and each coordinate are four bytes long. Colours in *Draw* files are also four-byte words: the first (least significant) byte is reserved, and should be set to 0, the next byte is the amount of red, from 0 to 255, the next byte is the amount of green, and the top byte is the amount of blue. In path objects, all the bits are set to indicate transparency (meaning, the colour is set to &FFFFFFFF). This format gives full 24-bit colour capability.

To manipulate a *Draw* file, my programs go through the source file object by object, simultaneously creating a new file. When a path object is reached, the programs copy the path object header, then go through the path object segment by segment, mathematically transforming any coordinates.

To make things more convenient, I have written a pair of procedures which handle the header data automatically. At the start of the object, after the object type is sent to the file, PROChead_here is called: this remembers where the header data is to go, and reserves space for it. It takes a parameter which is TRUE if a bounding box is required. When all the data for the object has been sent, PROChead_now is called, which goes back and enters the length word and bounding box if needed.

Most of the *DrawCurl* program is concerned with copying the structure of the file: the transformation of the coordinates is done in PROCalterxy, and could be replaced with a process of your own. If you don't want to split long path segments, you can remove those parts of the program that are only done if maxlen% is nonzero: PROCsplitbez, PROCdxdp and PROCdydp.

CADet

Multi-tasking
RISC OS Compliant
CAD Program

NOW AVAILABLE!

£149.00

Plus VAT

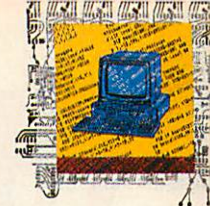
Site Licence available - please phone for details





SOFTWARE

MINERVA HOUSE, BARING CRESCENT, EXETER, EX1 1TL
Tel. (0392) 437756 Fax. (0392) 421762





PAUL SCHOFIELD

ASSEMBLY LINE

Dave Lawrence shows how to add a new dimension

Multi-dimensional arrays are a nice feature provided for us by Basic and most other high-level languages. Most of you will be familiar with one-dimensional arrays and these are easy to understand since the computer's memory is one-dimensional; in other words memory locations are numbered sequentially in whole numbers starting at zero.

It is therefore quite easy to refer to element 2 of an array simply by examining the next two memory locations after the start of the array. Element 2 is the third value you'd find in that array. (The first element is numbered 0, the second is numbered 1 and so on.)

So what about two dimensional arrays? Well they refer to each element using two numbers, such as (3, 4), but what exactly do the 3 and the 4 mean?

SNAKES AND LADDERS

A snakes and ladders board is numbered from 1 to 100 but it is in fact two-dimensional. This illustrates the principle behind multi-dimensional arrays in machine code. To lay out a 10×10 array in memory, you store ten 'strips' of ten elements end to end. So the first element of the array in memory would be (0,0) followed by (1,0), (2,0) and so on up to (9,0).

You can now go back to the start of the next row and continue with (0,1), (1,1), (2,1) and so on up to (9,1). This would continue for each row in the array, finishing with element (9,9). To access an arbitrary element (x,y) multiply y by 10, add x and use the result as an offset from the start of the array in memory.

Obviously you need to know how big the array is in the 'x' direction (its width), This is 10 in this case, to be able to scale the y value by the appropriate amount. I hope that by now those thinking cogs should be turning and you can see that the idea of having arrays that are powers of two wide is quite advantageous on an Arm-based machine.

Have a look at program *Arm1* which multiplies arrays. To keep it as simple as possible, it can only deal with square arrays up to 4×4 (controlled by the value of Size in line 630). Two arrays called, imaginatively, array1 and array2 are filled with random numbers; lines 690 and 700 do this in Basic, but exactly the same principle has been used that you would use in assembler, even though Basic itself supports explicit multi-dimensional arrays.

These random numbers are also stored in some Basic arrays to verify the result. The code called at line 760 and line 770 performs the same calculation on the Basic arrays. The results are printed out between lines 780 and 830 with the Basic values printed in brackets.

As for the code, well, you should really be able to follow it through for yourself by now, so have a look at the three blocks, 290-310, 330-360 and 420-440 which access the various arrays. Note the use of MLA to scale the y 'co-ordinate' and the use of post-indexed addressing to save us an ADD instruction in each case.

If we knew that the arrays were four bytes wide, what optimisations could have been made? In fact, this is a very 'wasteful' way of writing this program. Perhaps you can design it in a more efficient way?

SIMPLIFICATION

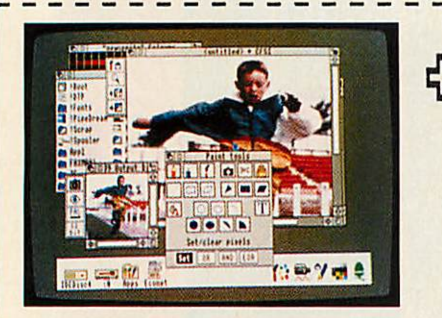
In many cases it will be possible to greatly simplify this rather gangly, general case. Say, for example, you wanted to store an array of x,y co-ordinate pairs. In Basic, you might do it with a pair of arrays, x(n) and y(n), or you might use a two-dimensional array xy(n,1) with the x co-

DESKTOP VIDEO

ON THE MENU TODAY...

Wild Vision

Info → High quality expansions for the Archimedes, A5000 and A3000 from the specialists in Desk Top Video.

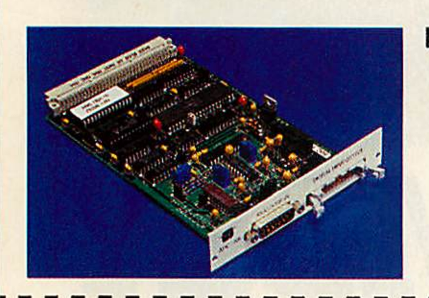


Real Time Colour Video Digitisers
Use video or TV as a source for computer images. The popular Hawk V9 digitiser is the ideal solution wherever you need photograph-like sprites in colour or monochrome for DTP or Art applications. Wild Vision combine quality and performance with value; real-time colour digitisers available from £199.00.



Superimposing text, graphics or animation onto video
Simple, with a *genlock and overlay card*. The Chroma range is your route to creating and recording video masterpieces. Just let the film - and your imagination - roll! Chroma Genlock range from £215.00.

PAL encoding units with optional multiple display facility also available.



Data acquisition
The Archimedes is the ideal vehicle for the measurement and analysis of analogue signals such as sound or ECG readings. Wild Vision's high speed 12-bit analogue to digital converters are used in medicine, research, defence, and incorporated into turnkey systems. ADC1208 from £560.00.

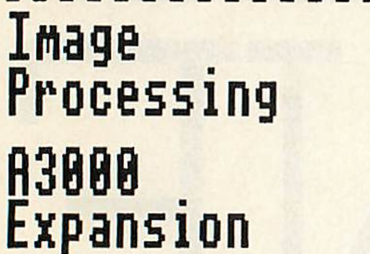
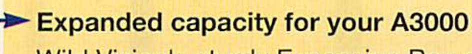


Image Processing and Analysis
The Hawk V12 video framestores are designed specifically for image processing on the mighty Archimedes. With Foster Findlay's ArcImage software, a powerful image processing and analysis system is created. Hawk V12 from £1,990.00.



A3000 Expansion → **Expanded capacity for your A3000**
Wild Vision's sturdy Expansion Box allows you to use standard Archimedes expansion cards with your A3000; up to three cards may be fitted at once. A3000 Expansion Box £139.00.

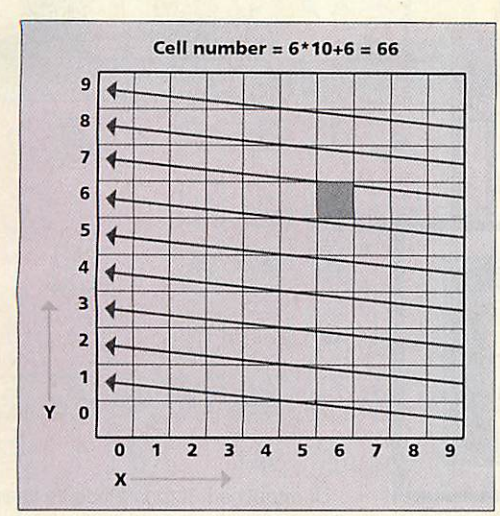
Misc → Contact Wild Vision for full details and price information on the above hardware and recommended complementary software.

Quit

Wild Vision, 15 Witney Way, Boldon Business Park, Boldon Colliery, Tyne & Wear NE35 9PE, Tel: 091 519 1455, Fax: 091 519 1929
Prices exclude carriage and VAT



WILD VISION



Two-dimensional arrays: just like snakes and ladders

ordinate of each pair stored in (i,0) and the y in (i,1). The first method would be trivial to convert into code, but you can save a little time and a potentially vital register by using the second method.

Even now, though, you have a choice. Do you store the data in a similar way to the arrays in *Arm1*, effectively with all the x's first followed by the y's (x, x, x . . . x, y, y, y . . . y) or do you store them as pairs, alternating between x's and y's (x, y, x, y, x, y . . . x, y)?

Assume you want to fetch an (x, y) pair into (R0, R1) and the register pair contains the pair number required and size indicates the size of the array. Then, for method one, the access routine could look something like:

```
ADR a,array
LDRB R0,[a,pair]!
LDRB R1,[a,size]
```

Note the use of write-back to move a to point to the x value. The corresponding y value is therefore size 'on' from that point.

For method two, you'd end up with something along the lines of:

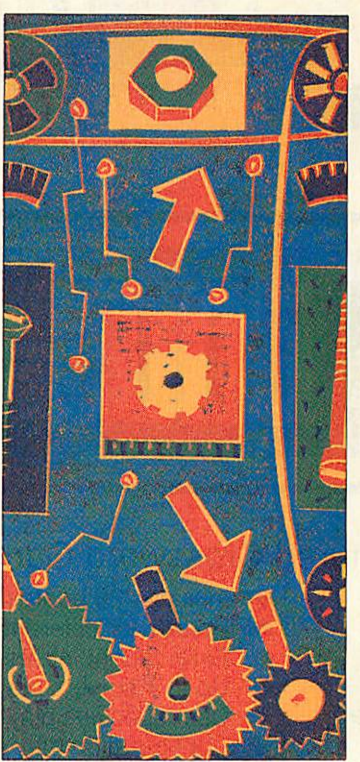
```
ADR a,array
LDRB R0,[a,pair,
        ASL #1]!
LDRB R1,[a,#1]
```

Here, the x value is actually twice the 'distance' into the array, hence the need for the ASL, and the y value directly follows it, so only a #1 is needed. This method has the advantage of not needing to know the size of the array and, again, this may free up a valuable register. We'll meet an exceptionally neat way of coding method two a little later on.

It should now be pretty obvious that this principle can be expanded to three and more dimensions, as required. All you need to do is lay the array out linearly and perform the appropriate multiplications to find the offset from the start of the array:

$$((z \times ysize + y) \times xsize + x)$$

But now, something (almost) completely different:



HACKING STACKS

Stacking is often held to be a tricky concept, but it is essential to understanding in depth just about every computer in existence at the moment. Let me digress for just a moment. Imagine you're sitting down writing a letter and you've just got as far as 'Dear Gran', when the phone rings, you put your pen down and answer the phone.

While you are talking, the pinger goes in the kitchen to remind you to take your cake out of the oven, so you ask your caller to hold for a minute, you go into the kitchen, take the cake out of the oven – it's a sponge, and it's risen rather well – before returning to the phone to finish your conversation. After hanging up, you sit back down and continue thanking your dear grandmother for the lovely bobble hat . . .

STACK IT AND SEE

This, believe it or not, is a perfect example of a stack. Imagine you have a limitless pile of those handy little sticky notes, and you always have one stuck on your hand that tells you what you are doing. When you finish, you remove it, simple. However, if you're interrupted by something you have to stick the new note on top of the one already there.

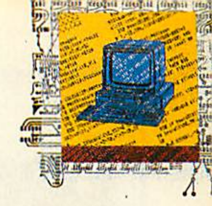
If this happens again you have to stick another on, and so on. So, when you went to take your sponge out of the oven, you'd have three, CAKE on top of PHONE on top of LETTER. Once the cake was on the relative safety of the cooling rack, you could throw CAKE away, to reveal PHONE and back you'd go to your conversation (Perhaps you could invite them round for tea and cake).

A stack is sometimes referred to as a LIFO or Last In First Out. In other words, the last piece of data stored in, or more precisely on, the stack is the first piece of data to be retrieved from it. It is conventional to think of a stack as growing upwards, because that is the best analogy to the way that stacks of physical objects behave in real life. However, in many cases, stacks actually grow *downwards* in memory in the computer. There is a good reason for this which we will come to later, but for now don't worry about it.

In any case, you do not need to know about the actual nature of a stack to be able to use one. Putting data on to the stack is sometimes referred to as 'pushing'. It can then be retrieved by 'pulling' it off later. You may also hear this called 'popping'.

If you've ever programmed in Forth, you'll know all about stacks, as this entire high-level language is based around them. Hewlett Packard calculators use a stack-based arithmetic called Reverse Polish Notation. Even closer to home, Basic makes use of stacks all the time. FORs, REPEATs, FNs, PROCs all have a secret stash of 'yellow sticky memo notes'; subroutines and procedures need to put an address somewhere to tell them where to go back to when finished, so they put it on the stack.

Next month, I'll be explaining more on stacks, including how you actually use them. Perhaps I can apply the concept to everyday life; time to stick a note on my hand to remind me to send in the article . . .



THE YOUNG ONES

Dave Acton selects some of the best from our younger readers

We get a great many submissions to the *INFO column each month and we've noticed an increasing number from young programmers. Many are published without reference to the age of their creators, so this page is to acknowledge the talents of the ever-expanding pool of youthful coding talent.

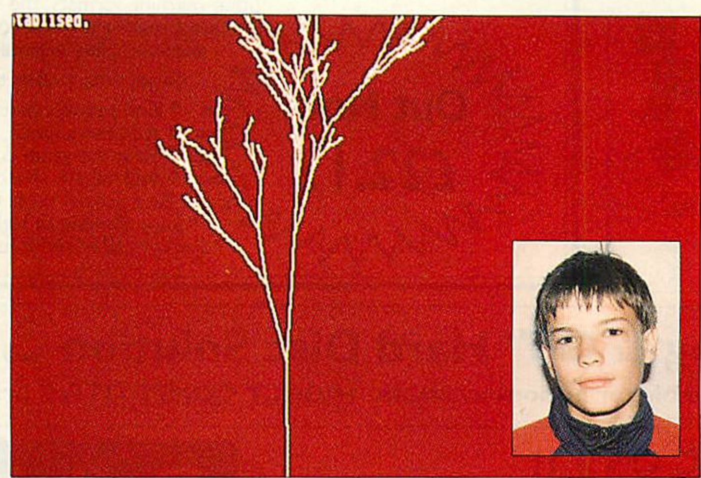
Featured here are three such programmers and, in keeping with this month's *BAU* theme, the games company Krisalis has rewarded each programmer with a game of their choice. It's reassuring to an elderly (26-year old) programmer to know that *BAU* will be in safe hands in the future . . .

CITIES AND TREES

Natural themes have influenced many *BAU* contributors over the years and Ben Carter (age 13) of Coleraine in County Derry is one of them.

His program *Tree6* draws a 'random' tree. Branches grow and plotting continues until the tree has 'stabilised'. The program is impressive because of the wide variety of very 'natural' images it is capable of producing. Press SPACE to start a new tree.

Ben's *City2* draws a network of lines emanating from the centre of the screen. When you are ready, press SPACE and watch the pulses flowing in and out of the city. The Select and Adjust mouse buttons alter the brightness and effect.

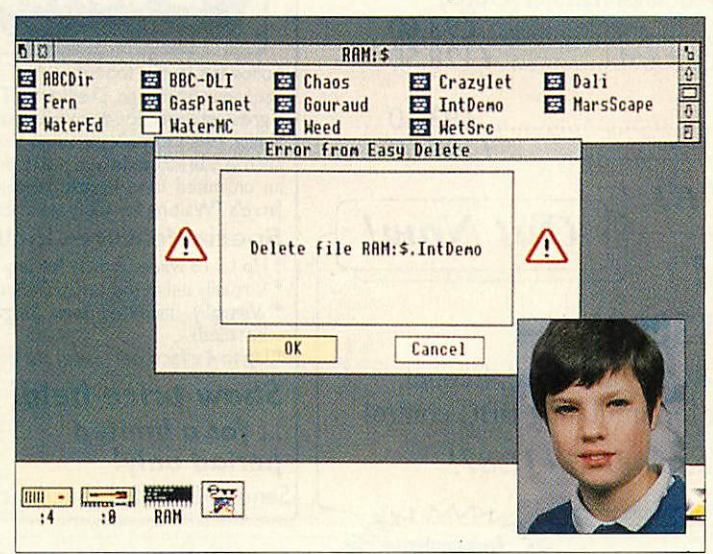


For Ben Carter of Coleraine, the Arc is software city

PRO-FILING

Nicholas Marriott (age 11) of Cookstown, County Tyrone makes his *BAU* debut with two multitasking utilities.

EasyDel is a concise solution to a common problem – deleting locked files and directories in the desktop. If a directory contains locked files the only way to get rid of them is either by reverting to the command line and typing *WIPE, or by unlocking with menus. *EasyDel* sits on the icon bar and offers a simple solution – just drag the file (or directory or application) to be scrapped onto the *EasyDel* icon. After confirmation the object will be unlocked and eradicated. Press CANCEL to abort the procedure.



Nicholas Marriott of Cookstown and his multitasking delete utility

To use the utility you will need to create a directory *!EasyDel* and save within it the *!RunImage* program. Then, run *EasyFiles* inside *!EasyDel* and this will create all the other files required (*!Sprites*, *Templates* etc). Any typing errors you make entering the data will be reported. When ready, double-click on *!EasyDel* to install.

FileSys is another handy utility that sits on the icon bar. It allows you to open directory viewers for 'strange' filing systems. You can use *FileSys* to open a viewer onto printer: and any text files dragged onto it will be printed out.

Create a directory *!FileSys* and save *!RunImage* inside. Then run *FSysFiles* which will create the other files required in *!FileSys*. Then double-click on the application to install.

The text file Filing contains the full pathname of the viewer to open (for example, printer:). Change this using a text editor to the desired filing system. You can also use *FileSys* to open certain directories – you just enter the full name in Filing like this:

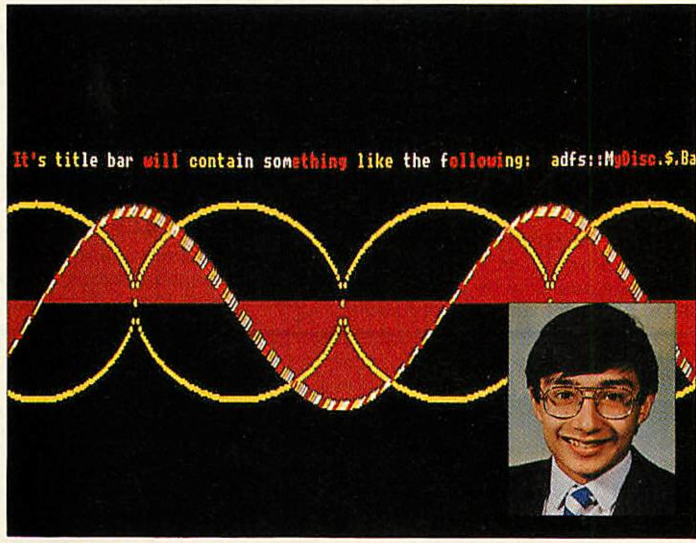
adfs::HD.$.Progs.Working

ONE-LINE WONDER

Our article wouldn't be finished without a smart-ass one-liner. *Scroll1* by Govind Kharbanda (age 14) of Edinburgh is a one-line scrolling demo. To run it you will need to have a text file (called *tf*) in the current directory. Create one with *Edit* or similar.

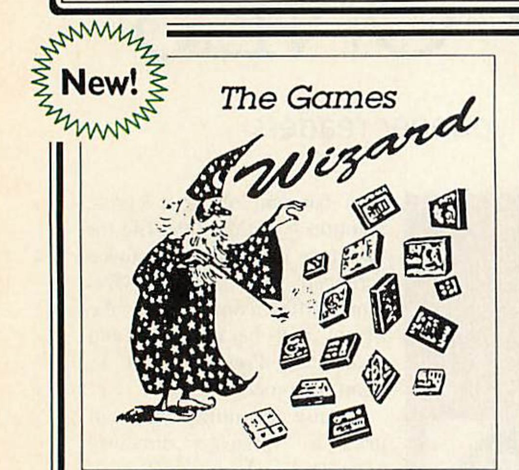
The text is then scrolled smoothly across the screen accompanied by trigonometrical artwork galore.

As usual, you'll find all these listings featured here on the yellow pages.



Govind Kharbanda of Edinburgh crams a multitude of effects into one line

Leading Edge Featuring two new products!





The Games Wizard is a MUST for all dedicated games players, allowing the user to EASILY add extra lives, find passwords, activate cheat modes and save a game in progress at any point, so that it can be continued later. Unlike similar devices on other machine formats, the Games Wizard is totally software based, making it a low cost, essential tool, that does not waste valuable expansion slots.

Games Wizard offers these, and many other amazing features:-

* Find passwords for new levels!
* Add extra lives!
* Slow the game down by any amount!
* Add infinite shields!
* Save screen shots to preserve your high scores!
* Jump directly to higher levels or worlds!
* Perform all of these functions during game play!

A3000 "Plug & Go" Hard Disc Solution .. *release imminent!*

40Mb, 80Mb, 120Mb and bigger options available. HIGHLY COMPETITIVE prices - 'phone us for details!

SCSI CARDS - RISC OS 3.1!

Internal/External podule for all machines (but not A5000)

* 8-bit budget card £93.60
* 16-bit High performance card £128.50

A3000 Internal Cards

* 8-bit budget card £93.60
* 8-bit turbo card £128.50

NEW LOW PRICE!

Out Now!

Schools!

User Port for A3000!

Allows you to have a SCSI hard drive, Econet, MIDI and a User Port for emulating BBC control

... User Port interface only £131.87!

Desktop Tracker

Following in the footsteps of Tracker, the very successful music sample sequencing package, **Desktop Tracker** is a "new improved" product, and a great introduction to music composition! Even with practically no musical ability, users can create tunes that sound really professional. With effects such as vibrato, fade out, portamento and tremelo (to name but a few), and an unlimited tune length, anything from Beethoven's 5th to Jean-Michel Jarre's "Waiting for Cousteau" can be written.

Special features include

* Up to 16 voices (a first for any home computer program!)
* Virtually unlimited sample lengths (dependent only on memory installed)
* Virtually unlimited tune lengths (again, only dependent on memory installed)
* Up to 4 effects per voice, per line.

Show price held!
... for a limited period only!

£58.72

Send SAE for full specification

Other Leading Edge Products

Price smashed in spite of the dollar!

*** A5000 RAM Upgrades - *Even further reduced!***
High quality four layer PCB, easy to fit - slots vertically - no need to remove backplane or hard drive; uses fast DRAM to match your A5000 - 2Mb Upgrade (to give you 4Mb in total) ~~£112.00~~ **£85.00**

*** Graphics Enhancer** (Not A5000) 300/400 series .. **£225.52**
Adds 24 bit palette and much more! (A3000) .... £235.74)

*** Investigator 2 .... £23.79**
The best selling disc utility package - runs from desktop, installs on hard drive, improved disc editing facilities, more powerful backup features with greater compression and detailed 40 page manual. *(Not A5000)*

*** Joystick Interface V2.4 .... £34.00**
This new version hardware/software package conforms fully to the required Acorn standards, allows one or two standard digital joysticks to be used. No internal fitting, expansion box or backplane is necessary!

*** Tracker Tunes (2 - 17 each) £5.00**
Great tunes even if you haven't got Tracker! - Full list available!

*** Sound Sampler/MIDI Card £79.99**
Sounds can be sampled from HI-FI's, or CD players. It is installed instead of the Econet network card.

*** MIDI Tracker £16.17**
Allows Tracker tune modules to be played out of a MIDI interface. Even inexpensive keyboards have the ability to create excellent sounds beyond even the sound quality of the Archimedes.

Leading Edge

Dept AUC2LE, Northwood House, North Street, LEEDS LS7 2AA
Tel 0532 458800 Fax 0532 423289

* Carriage contribution £2.50, UK mainland only, excluding Scottish Highlands Other areas, including overseas, carriage charged at cost.
* Please add VAT at 17.5% to all prices, including carriage
* Please make cheques/P.O.s payable to LEADING EDGE
* Access or Visa cards welcome
* Official education orders accepted; (minimum order value £30.00 for invoicing, otherwise cheque with order).

(Prices correct, E & OE)

All products designed and developed by Vertical Twist

Distribution exclusive to Greyhound Marketing. Dealer enquiries 0532 621111

YELLOW PAGES

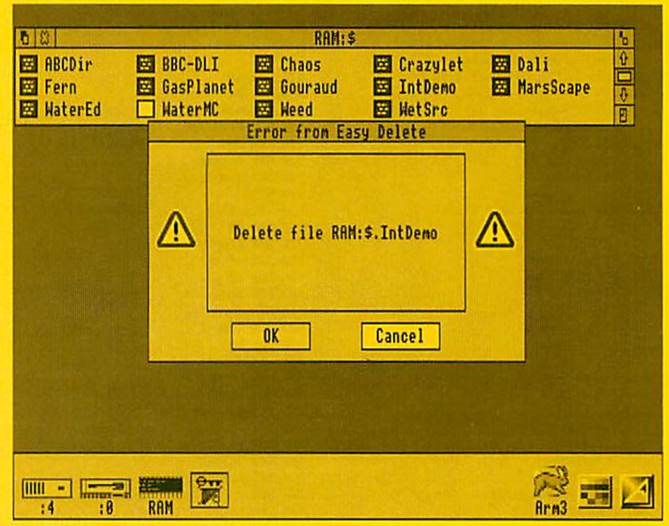
Free programs for you to type in and use

COMPATIBILITY CHART

Use this chart to check if a program will work on your machine. There are two columns, one for eight-bit machines like the Model B and Master 128, and one for 32-bit machines, like the A3000, A400 or A3010. If there is a star for the program in the column then it will work on your machine. Special exceptions and hardware requirements are listed as foot notes at the end of the table.

Linked listings, those which require each other have a grey background, for example Kids3 (*!Runimage*) requires Kids4 (*Easyfiles*) to generate files for the application *EasyDel*.

Article	Program Name	8-bit	32-bit
Making Light Work, page 96			
Xmas1	*Xmas8*	*	
Xmas2	*Xmas32*		*
***INFO, page 103**			
Info1	*Compres*	*	
Info2	*Demo1*	*	
Info3	*Demo2*	*	
Info4	*Demo3*	*	
Info5	*Demo4*	*	
Info6	*Demo5*	*	
Info7	*3DMole*		*
Info8	*Dialcodes*	*	*
Info9	Ex-Get	*	*
Info10	*Ex-Inkey*	*	*
Info11	*Ex-Inkey-*	*	*
Info12	*Squares*	*	
Info13	*IFS2*	*	*
Info14	*IFSDemo1*	*	*
Info15	*IFSDemo2*	*	*
Info16	*Stir*		*
Info17	*Ball12*		*
Info18	*Tentacles*		*
Info19	*MakeApp*		*
Info20	*!Runimage*		*
Info21	*Reflection*		*
Info22	*Explodes*		*
Info23	*TheQuest*		*
Info24	*Splat*		*
Info25	*Goo*		*
Info26	*DarkSide*	*	*
Info27	*Col256x12*		*
Info28	*Col256x8*		*
Round the Bend, page 112			
Draw1	*DrawItalic*		*
Draw2	*MakeDraw*		*
Draw3	*ReShape*		*
Draw4	*DrawCurl*		*
Assembly Line, page 115			
Arm1	*Arm1*		*
The Young Ones, page 119			
Kids1	*Tree6*		*
Kids2	*City2*		*
Kids3	*!Runimage*		*
Kids4	*EasyFiles*		*
Kids5	*!Runimage*		*
Kids6	*FSysfiles*		*
Kids7	*Scroll1*		*



Those locked files stand no chance when you use EasyDel

MAKING LIGHT WORK

Listing 1 – Xmas32

```
10 REM >XMAS32
20 REM by Richard Garrett
30 REM for 32-bit machines
40 REM (c) BAU Dec 1992
50 :
60 MODE 1
70 :
80 PROCinit
90 PROCdisplay
100 :
110 REPEAT
120 PROCselect
130 PROCgo
140 UNTIL FALSE
150 :
160 END
170 :
180 DEF PROCinit
190 OFF
200 DIM algo$(2)
210 FOR i=0 TO 2
220 READ algo$(i)
230 NEXT i
240 state=0
250 delay=30
260 algorithm=0
270 *FX &97,&60,255
280 ENDPROC
290 :
300 DEF PROCdisplay
310 PROCbox(100,800,980,140,3)
320 PROCshow_state(state)
330 PROCtext
340 ENDPROC
350 :
360 DEF PROCselect
370 PROCpr(" 1 - 8 toggle channels ",6
,25,0,2)
380 PROCpr(" A, D alter parameters ",6
,26,0,2)
390 PROCpr("    RETURN to start    ",6
,27,0,2)
400 REPEAT
410 key=FNkey("8*7&6^5%4$3#2@1!AaDd"+C
HR$13+CHR$13)
420 IF key<9 THEN state=FNchange_bit(s
tate,key):PROCshow_state(state)
430 IF key=9 THEN algorithm=FNparam_in
c(algorithm,0,2,1):PROCpr(algo$(algorith
m),20,15,3,0)
440 IF key=10 THEN delay=FNparam_inc(d
elay,10,200,10):PROCpr(STR$(delay)+"  ",
20,17,3,0)
450 UNTIL key=11
460 ENDPROC
470 :
480 DEFFNparam_inc(param,min,max,inc)
490 IF param = max THEN = min
500 =param+inc
510 :
520 DEF PROCgo
530 PROCpr("                          ",6
,25,2,0)
540 PROCpr("   Space bar to stop   ",6
,26,2,0)
550 PROCpr("                          ",6
,27,2,0)
560 REPEAT
570 IF algorithm= 0 THEN state=FNrando
m
580 IF algorithm= 1 THEN state=FNrand_
walk(state)
590 IF algorithm= 2 THEN state=FNchase
(state)
600 PROCshow_state(state)
610 PROCwait(delay)
620 UNTIL INKEY -99
630 ENDPROC
640 :
650 DEF PROCbox(x,y,length,height,colo
ur)
660 GCOL 0,colour
670 RECTANGLE FILL x,y,length,height
680 ENDPROC
690 :
700 DEF PROCshow_state(state)
710 FOR i=0 TO 7
```

```
 720 IF state AND 2^i THEN colour=1 ELS
E colour=Ø
 730 PROCbox(96Ø-12Ø*i,82Ø,1ØØ,1ØØ,colo
ur)
 74Ø NEXT i
 75Ø OSCLI("FX &97,&62, "+STR$(state))
 76Ø ENDPROC
 77Ø :
 78Ø DEF PROCtext
 79Ø PROCpr("Algorithm",2,15,1,Ø)
 8ØØ PROCpr("Delay",2,17,1,Ø)
 81Ø PROCpr(algo$(algorithm),2Ø,15,3,Ø)
 82Ø PROCpr(STR$(delay),2Ø,17,3,Ø)
 83Ø ENDPROC
 84Ø :
 85Ø DEF PROCpr(text$,x,y,fc,bc)
 86Ø COLOUR fc
 87Ø COLOUR 128+bc
 88Ø PRINTTAB(x,y)text$
 89Ø ENDPROC
 9ØØ :
 91Ø DEFFNkey(key$)
 92Ø REPEAT
 93Ø i=(1+INSTR(key$,GET$))DIV2
 94Ø UNTIL i<>Ø
 95Ø =i
 96Ø :
 97Ø DEFFNchange_bit(state,key)
 98Ø =state EOR (2^(key-1))
 99Ø :
1ØØØ DEFFNrandom:=RND(255)
1Ø1Ø :
1Ø2Ø DEFFNrand_walk(state):=state EOR 2
^(RND(8)-1)
1Ø3Ø :
1Ø4Ø DEFFNchase(state)
1Ø5Ø state=state*2
1Ø6Ø =(state AND &FF)+(state AND 256)/2
56
1Ø7Ø :
1Ø8Ø DEF PROCwait(delay)
1Ø9Ø TIME=Ø
11ØØ REPEAT UNTIL TIME>delay
111Ø ENDPROC
112Ø :
113Ø REM Algorithms
114Ø DATA "random     ","random walk","
chase      "
```

Listing 2 – Xmas8

```
  1Ø REM >XMAS8
  2Ø REM by Richard Garrett
  3Ø REM for eight-bit machines
  4Ø REM (C) BAU Dec 1992
  5Ø :
  6Ø MODE 1
  7Ø :
  8Ø PROCinit
  9Ø PROCdisplay
 1ØØ :
 11Ø REPEAT
 12Ø PROCselect
 13Ø PROCgo
 14Ø UNTIL FALSE
 15Ø :
 16Ø END
 17Ø :
 18Ø DEF PROCinit
 19Ø VDU 23;82Ø2;Ø;Ø;Ø;
 2ØØ DIM algo$(2)
 21Ø FOR i=Ø TO 2
 22Ø READ algo$(i)
 23Ø NEXT i
 24Ø state=Ø
 25Ø delay=3Ø
 26Ø algorithm=Ø
 27Ø *FX 151,96,255
 28Ø ENDPROC
 29Ø :
 3ØØ DEF PROCdisplay
 31Ø PROCbox(1ØØ,8ØØ,98Ø,14Ø,3)
 32Ø PROCshow_state(state)
 33Ø PROCtext
 34Ø ENDPROC
 35Ø :
 36Ø DEF PROCselect
 37Ø PROCpr(" 1 - 8 toggle channels ",6
,25,Ø,2)
 38Ø PROCpr(" A, D alter parameters ",6
,26,Ø,2)
 39Ø PROCpr("    RETURN to start     ",6
,27,Ø,2)
 4ØØ REPEAT
 41Ø key=FNkey("8(7'6&5%4$3#2" +CHR$34+
"1!aAdD"+CHR$13+CHR$13)
 42Ø IF key<9 THEN state=FNchange_bit(s
tate,key):PROCshow_state(state)
 43Ø IF key=9 THEN algorithm=FNparam_in
c(algorithm,Ø,2,1):PROCpr(algo$(algorith
m),2Ø,15,3,Ø)
 44Ø IF key=1Ø THEN delay=FNparam_inc(d
elay,1Ø,2ØØ,1Ø):PROCpr(STR$(delay)+"  ",
2Ø,17,3,Ø)
 45Ø UNTIL key=11
 46Ø ENDPROC
 47Ø :
 48Ø DEFFNparam_inc(param,min,max,inc)
 49Ø IF param = max THEN = min
 5ØØ =param+inc
 51Ø :
 52Ø DEF PROCgo
 53Ø PROCpr("                        ",6
,25,2,Ø)
 54Ø PROCpr("   Space bar to stop    ",6
,26,2,Ø)
 55Ø PROCpr("                        ",6
,27,2,Ø)
 56Ø REPEAT
 57Ø IF algorithm= Ø THEN state=FNrando
m
 58Ø IF algorithm= 1 THEN state=FNrand_
walk(state)
 59Ø IF algorithm= 2 THEN state=FNchase
(state)
 6ØØ PROCshow_state(state)
 61Ø PROCwait(delay)
 62Ø UNTIL INKEY -99
 63Ø ENDPROC
 64Ø :
 65Ø DEF PROCbox(x,y,length,height,colo
ur)
 66Ø GCOL Ø,128+colour
 67Ø VDU 24,x;y;x+length;y+height;16,26
 68Ø ENDPROC
 69Ø :
 7ØØ DEF PROCshow_state(state)
 71Ø FOR i=Ø TO 7
 72Ø IF state AND 2^i THEN colour=1 ELS
E colour=Ø
 73Ø PROCbox(96Ø-12Ø*i,82Ø,1ØØ,1ØØ,colo
ur)
 74Ø NEXT i
 75Ø A%=&97:X%=&62:Y%=state:CALL &FFF4
 76Ø ENDPROC
 77Ø :
 78Ø DEF PROCtext
 79Ø PROCpr("Algorithm",2,15,1,Ø)
 8ØØ PROCpr("Delay",2,17,1,Ø)
 81Ø PROCpr(algo$(algorithm),2Ø,15,3,Ø)
 82Ø PROCpr(STR$(delay),2Ø,17,3,Ø)
 83Ø ENDPROC
 84Ø :
 85Ø DEF PROCpr(text$,x,y,fc,bc)
 86Ø COLOUR fc
 87Ø COLOUR 128+bc
 88Ø PRINTTAB(x,y)text$
 89Ø ENDPROC
 9ØØ :
 91Ø DEFFNkey(key$)
 92Ø REPEAT
 93Ø i=(1+INSTR(key$,GET$))DIV2
 94Ø UNTIL i<>Ø
 95Ø =i
 96Ø :
 97Ø DEFFNchange_bit(state,key)
 98Ø =state EOR (2^(key-1))
 99Ø :
1ØØØ DEFFNrandom:=RND(255)
1Ø1Ø :
1Ø2Ø DEFFNrand_walk(state):=state EOR 2
^(RND(8)-1)
1Ø3Ø :
1Ø4Ø DEFFNchase(state)
1Ø5Ø state=state*2
1Ø6Ø =(state AND &FF)+(state AND 256)/2
56
1Ø7Ø :
1Ø8Ø DEF PROCwait(delay)
1Ø9Ø TIME=Ø
11ØØ REPEAT UNTIL TIME>delay
111Ø ENDPROC
112Ø REM Algorithms
113Ø DATA "random     ","random walk","
chase      "
```

*INFO

Listing 1 – Compres

```
  1Ø REM >Compres (Info1)
  2Ø REM By Richard Talbot-Watkins
  3Ø REM For 8-bit machines
  4Ø REM (C) BAU December 1992
  5Ø :
  6Ø PRINT "Assembling..."
  7Ø screen   = &7Ø
  8Ø mem      = &74
  9Ø temp     = &78
 1ØØ flagbyte = &7A
 11Ø :
 12Ø FOR N%=Ø TO 2 STEP 2
 13Ø P%=&9ØØ
 14Ø [OPT N%
 15Ø .jumpvectors
 16Ø JMP compress
 17Ø JMP expand
 18Ø :
 19Ø .compress
 2ØØ JSR findflag
 21Ø LDA flagbyte
 22Ø LDY #Ø
 23Ø STA (mem),Y
 24Ø INC mem
 25Ø BNE P%+4
 26Ø INC mem+1
 27Ø .comploop
 28Ø LDY #Ø
 29Ø LDA (screen),Y
 3ØØ .repetition
 31Ø INY
 32Ø CPY #255
 33Ø BEQ sequence
 34Ø CMP (screen),Y
 35Ø BEQ repetition
 36Ø CPY #4
 37Ø BCS sequence
 38Ø LDY #Ø
 39Ø STA (mem),Y
 4ØØ INC mem
 41Ø BNE P%+4
 42Ø INC mem+1
 43Ø INC screen
 44Ø BNE comploop
 45Ø INC screen+1
 46Ø BPL comploop
 47Ø RTS
 48Ø .sequence
 49Ø STA temp
 5ØØ STY temp+1
 51Ø TYA
 52Ø CLC
 53Ø ADC screen
 54Ø STA screen
 55Ø BCC P%+4
 56Ø INC screen+1
 57Ø LDY #Ø
 58Ø LDA flagbyte
 59Ø STA (mem),Y
 6ØØ LDA temp+1
 61Ø INY
 62Ø STA (mem),Y
 63Ø LDA temp
 64Ø INY
 65Ø STA (mem),Y
 66Ø CLC
 67Ø LDA mem
 68Ø ADC #3
 69Ø STA mem
 7ØØ BCC P%+4
 71Ø INC mem+1
 72Ø BIT screen+1
 73Ø BPL comploop
 74Ø RTS
 75Ø .findflag
 76Ø LDA #Ø
 77Ø STA flagbyte
 78Ø .findflag2
 79Ø LDA screen
 8ØØ STA temp
 81Ø LDA screen+1
 82Ø STA temp+1
 83Ø LDY #Ø
 84Ø .findflag3
 85Ø LDA (temp),Y
 86Ø CMP flagbyte
 87Ø BEQ notthis
 88Ø INY
 89Ø BNE findflag3
 9ØØ INC temp+1
 91Ø BPL findflag3
 92Ø RTS
 93Ø .notthis
 94Ø INC flagbyte
 95Ø BNE findflag2
 96Ø BRK
 97Ø EQUB 255
 98Ø EQUS "Can't compress screen"
 99Ø BRK
1ØØØ :
1Ø1Ø .expand
1Ø2Ø LDY #Ø
1Ø3Ø LDA (mem),Y
1Ø4Ø STA flagbyte
1Ø5Ø INC mem
1Ø6Ø BNE P%+4
1Ø7Ø INC mem+1
1Ø8Ø .exploop
1Ø9Ø LDA (mem),Y
11ØØ CMP flagbyte
111Ø BEQ unpack
112Ø STA (screen),Y
113Ø INC mem
114Ø BNE P%+4
115Ø INC mem+1
116Ø INC screen
117Ø BNE exploop
118Ø INC screen+1
119Ø BPL exploop
12ØØ RTS
121Ø .unpack
122Ø INY
123Ø LDA (mem),Y
124Ø STA temp
125Ø TAX
126Ø INY
127Ø LDA (mem),Y
128Ø LDY #Ø
129Ø .storelots
13ØØ STA (screen),Y
131Ø INY
132Ø DEX
133Ø BNE storelots
134Ø CLC
135Ø LDA mem
136Ø ADC #3
137Ø STA mem
138Ø BCC P%+4
139Ø INC mem+1
14ØØ LDY #Ø
141Ø LDA temp
142Ø CLC
143Ø ADC screen
144Ø STA screen
145Ø BCC exploop
146Ø INC screen+1
147Ø BPL exploop
148Ø RTS
149Ø ]
15ØØ NEXT
151Ø :
152Ø PRINT '"Code assembled."
153Ø PRINT '"Saving:"
154Ø A$="SAVE CompM/C 9ØØ "+STR$~P%
155Ø PRINT '"*";A$
156Ø OSCLI A$
```

Listing 2 – Demo1

```
  1Ø REM >Demo1 - TrigProg (Info2)
  2Ø REM by Richard Talbot-Watkins
  3Ø REM for 8-bit machines
  4Ø REM (c) BAU December 1992
  5Ø :
  6Ø IF PAGE>&11ØØ PRINT"Please set PAG
E to &11ØØ and try again!"
  7Ø MODE 4
  8Ø VDU 23;82Ø2;Ø;Ø;Ø;
  9Ø HIMEM=&1AØØ
 1ØØ OSCLI "LOAD CompM/C"
 11Ø screen   = &7Ø
 12Ø mem      = &74
 13Ø compress = &9ØØ
 14Ø expand   = &9Ø3
 15Ø gxrrom% = INKEY-256=253 OR INKEY-
256=245
 16Ø PROCbuild
 17Ø PROCplayback
 18Ø END
 19Ø :
 2ØØ DEF PROCbuild
 21Ø VDU 29,64Ø;512;
 22Ø b=Ø:l=1
 23Ø !mem=&1AØØ
 24Ø FOR frame%=1 TO 24
 25Ø CLS
 26Ø b=b+PI/144
 27Ø ang=b+1
 28Ø FOR ball%=1 TO 12
 29Ø g=SIN(ang):h=COS(ang)
 3ØØ PROCcirc(g^3*h*35Ø,h*g*35Ø,h*5Ø)
 31Ø PLOT 65,g^5*h^3*128Ø,h*112
 32Ø PLOT 65,g^5*g^2*128Ø,h*112
 33Ø PROCcirc(g^3*58Ø,h*45Ø,h*2Ø)
 34Ø ang=ang+PI/6
 35Ø NEXT
 36Ø !screen=&58ØØ
 37Ø CALL compress
 38Ø NEXT
 39Ø ENDPROC
 4ØØ :
 41Ø DEF PROCplayback
 42Ø REPEAT
 43Ø !mem=&1AØØ
 44Ø FOR N%=1 TO 24:!screen=&58ØØ:CALL
expand:NEXT
 45Ø UNTIL FALSE
 46Ø ENDPROC
 47Ø :
 48Ø DEF PROCcirc(x%,y%,r%)
 49Ø IF gxrrom% MOVE x%,y%:PLOT 145,Ø,r
%:ENDPROC
 5ØØ LOCAL n
 51Ø MOVE x%,y%+r%
 52Ø FOR n=Ø TO 2*PI STEP PI/2Ø
 53Ø DRAW SINn*r%+x%+2,COSn*r%+y%+2
 54Ø NEXT
 55Ø MOVE x%,y%+r%
 56Ø ENDPROC
```

Listing 3 – Demo2

```
  1Ø REM >Demo2 - Dancing fern (Info3)
  2Ø REM By Richard Talbot-Watkins
  3Ø REM For 8-bit machines
  4Ø REM (C) BAU December 1992
  5Ø :
  6Ø IF PAGE>&11ØØ PRINT"Please set PAG
E to &11ØØ and try again!":END
  7Ø MODE 4
  8Ø VDU 23;82Ø2;Ø;Ø;Ø;
  9Ø VDU 23;6,2Ø,Ø;Ø;Ø;
 1ØØ VDU 23;7,29,Ø;Ø;Ø;
 11Ø VDU 23;12,12,Ø;Ø;Ø;
 12Ø VDU 23;13,&EØ,Ø;Ø;Ø;
 13Ø VDU 19,3,2;Ø;
 14Ø HIMEM=&1FØØ
 15Ø OSCLI "LOAD CompM/C"
 16Ø screen   = &7Ø
 17Ø mem      = &74
 18Ø compress = &9ØØ
 19Ø expand   = &9Ø3
 2ØØ PROCbuild
 21Ø PROCplayback
 22Ø END
 23Ø :
 24Ø DEF PROCbuild
 25Ø VDU 28,Ø,31,39,12
 26Ø DIM a%(23)
 27Ø !mem=&1FØØ
 28Ø FOR frame%=1 TO 23
 29Ø a%(frame%-1)=!mem
```

```
  300 CLS
  310 PRINT "Frame ";frame%
  320 t=20*SINRAD(7.5*frame%+90)
  330 PROCa(640,0,98,0)
  340 PRINT CHR$30;SPC8
  350 !screen=&6700
  360 CALL compress
  370 NEXT
  380 ENDPROC
  390 :
  400 DEF PROCa(x%,y%,s,a%)
  410 LOCAL b%,c%
  420 IF s<=3 ENDPROC
  430 b%=x%+s*SINRADa%
  440 c%=y%+s*COSRADa%
  450 MOVE x%,y%:DRAW b%,c%
  460 PROCa(b%,c%,.85*s,a%+t)
  470 PROCa(b%,c%,.35*s,a%-60)
  480 PROCa(b%,c%,.35*s,a%+60)
  490 ENDPROC
  500 :
  510 DEF PROCplayback
  520 REPEAT
  530 !mem=&1F00
  540 FOR N%=0 TO 22:!screen=&6700:!mem=
a%(N%):CALL expand:NEXT:FOR N%=22 TO 0 S
TEP -1:!screen=&6700:!mem=a%(N%):CALL ex
pand:NEXT
  550 UNTIL FALSE
  560 ENDPROC
```

Listing 4 – Demo3

```
   10 REM >Demo3 - SurrealScape (Info4)
   20 REM By RTW/MG
   30 REM For 8-bit machines
   40 REM (C) BAU December 1992
   50 :
   60 IF PAGE>&1100 PRINT"Please set PAG
E to &1100 and try again!":END
   70 MODE 5
   80 VDU 23;8202;0;0;0;
   90 VDU 23;6,20,0;0;0;
  100 VDU 23;7,29,0;0;0;
  110 VDU 23;12,12,0;0;0;
  120 VDU 23;13,&E0,0;0;0;
  130 VDU 19,2,4;0;
  140 HIMEM=&1F00
  150 OSCLI "LOAD CompM/C"
  160 screen   = &70
  170 mem      = &74
  180 compress = &900
  190 expand   = &903
  200 PROCbuild
  210 PROCplayback
  220 END
  230 :
  240 DEF PROCbuild
  250 VDU 28,0,31,19,12
  260 VDU 24,128;0;1151;639;
  270 VDU 29,640;0;
  280 DIM a%(23)
  290 !mem=&1F00
  300 FOR frame%=0 TO 7
  310 a%(frame%)=!mem
  320 CLS
  330 GCOL 3,1
  340 FOR N%=-512-8*frame% TO 520 STEP 6
4
  350 MOVE N%,200:MOVE N%+16,200
  360 PLOT 85,N%*2,0
  370 MOVE N%+24,200:MOVE N%*2+8,0
  380 PLOT 85,(N%+24)*2,0
  390 NEXT
  400 y=200:v=1
  410 REPEAT
  420 FOR M%=y-v+4 TO y STEP 4
  430 MOVE -512,M%
  440 DRAW 512,M%
  450 NEXT
  460 y=y-v*2
  470 v=v+3
  480 UNTILy<0
  490 GCOL 1,2
  500 MOVE -512,0:MOVE 512,0
  510 PLOT 85,-512,200
  520 PLOT 85,512,200
  530 GCOL 0,3
  540 IF RND(-2)
  550 FOR N%=1 TO 20
  560 PLOT 69,RND(1023)-512,RND(400)+204
  570 NEXT
  580 GCOL 0,1
  590 PROCsquare(0,400,120,50,frame%*90/
8)
  600 PROCsquare(-170,344,60,25,frame%*9
0/8)
  610 PROCsquare(170,344,60,25,frame%*90
/8)
  620 PROCsquare(-360,140*SINRAD(frame%*
180/8)+200,40,40,45)
  630 PROCsquare(360,140*SINRAD((frame%+
2 AND 7)*180/8)+200,40,40,45)
  640 GCOL 0,0
  650 PROCsquare(0,80,120,50,frame%*90/8
)
  660 PROCsquare(-170,100,60,25,frame%*9
0/8)
  670 PROCsquare(170,100,60,25,frame%*90
/8)
  680 PROCsquare(-360,140-70*SINRAD(fram
e%*180/8),40,20,45)
  690 PROCsquare(360,140-70*SINRAD((fram
e%+2 AND 7)*180/8),40,20,45)
  700 !screen=&6700
  710 CALL compress
  720 NEXT
  730 ENDPROC
  740 :
  750 DEF PROCsquare(x%,y%,xr%,yr%,rot%)
  760 MOVE SINRAD(rot%)*xr%+x%,COSRAD(ro
t%)*yr%+y%
  770 MOVE SINRAD(rot%+90)*xr%+x%,COSRAD
(rot%+90)*yr%+y%
  780 PLOT 85,SINRAD(rot%+270)*xr%+x%,CO
SRAD(rot%+270)*yr%+y%
  790 PLOT 85,SINRAD(rot%+180)*xr%+x%,CO
SRAD(rot%+180)*yr%+y%
  800 ENDPROC
  810 :
  820 DEF PROCplayback
  830 REPEAT
  840 !mem=&1F00
  850 FOR N%=0 TO 7:!screen=&6700:!mem=a
%(N%):CALL expand:NEXT
  860 UNTIL FALSE
  870 ENDPROC
```

Listing 5 – Demo4

```
   10 REM >Demo4 - Pendulums (Info5)
   20 REM By Richard Talbot-Watkins
   30 REM For 8-bit machines
   40 REM (C) BAU December 1992
   50 :
   60 IF PAGE>&1100 PRINT"Please set PAG
E to &1100 and try again!":END
   70 MODE 4
   80 VDU 23;8202;0;0;0;
   90 HIMEM=&1800
  100 OSCLI "LOAD CompM/C"
  110 screen   = &70
  120 mem      = &74
  130 compress = &900
  140 expand   = &903
  150 PROCbuild
  160 PROCplayback
  170 END
  180 :
  190 DEF PROCbuild
  200 DIM a%(32)
  210 VDU 23,128,3,12,16,32,64,64,128,12
8
  220 VDU 23,129,192,48,8,4,2,2,1,1
  230 VDU 23,130,128,128,64,64,32,16,12,
3
  240 VDU 23,131,1,1,2,2,4,8,48,192
  250 !mem=&1800
  260 FOR frame%=1 TO 27
  270 a%(frame%-1)=!mem
  280 CLS
  290 PRINT "Frame ";frame%
  300 PROCpend(640,1023,15*SINRAD((180/2
8)*frame%+90),50)
  310 PROCpend(960,1023,15*SINRAD((180/1
4)*frame%+90),25)
  320 PROCpend(320,1023,15*SINRAD((180/7
)*frame%+90),13)
  330 PRINT CHR$30;SPC8
  340 !screen=&5800
  350 CALL compress
  360 NEXT
  370 ENDPROC
  380 :
  390 DEF PROCpend(x%,y%,t,len)
  400 LOCAL ang
  410 ang=t
  420 MOVE x%,y%
  430 REPEAT
  440 PLOT 1,len*SINRADang,-len*COSRADan
g
  450 ang=ang+t/8
  460 len=len*.95
  470 UNTIL len<4
  480 PLOT 0,(len+30)*SINRADang-32,-(len
+30)*COSRADang+32
  490 VDU 5,128,129,8,8,10,130,131,4
  500 ENDPROC
  510 :
  520 DEF PROCplayback
  530 REPEAT
  540 !mem=&1800
  550 FOR N%=0 TO 26:!screen=&5800:!mem=
a%(N%):CALL expand:NEXT:FOR N%=26 TO 0 S
TEP -1:!screen=&5800:!mem=a%(N%):CALL ex
pand:NEXT
  560 UNTIL FALSE
  570 ENDPROC
```

Listing 6 – Demo5

```
   10 REM >Demo5 - Sierpinski Gasket (In
fo6)
   20 REM By Richard Talbot-Watkins
   30 REM For 8-bit machines
   40 REM (C) BAU December 1992
   50 :
   60 IF PAGE>&1100 PRINT"Please set PAG
E to &1100 and try again!":END
   70 MODE 4
   80 VDU 23;8202;0;0;0;
   90 VDU 23;6,20,0;0;0;
  100 VDU 23;7,29,0;0;0;
  110 VDU 23;12,12,0;0;0;
  120 VDU 23;13,&E0,0;0;0;
  130 HIMEM=&1700
  140 OSCLI "LOAD CompM/C"
  150 screen   = &70
  160 mem      = &74
  170 compress = &900
  180 expand   = &903
  190 PROCbuild
  200 PROCplayback
  210 END
  220 :
  230 DEF PROCbuild
  240 VDU 28,0,31,39,12
  250 DIM x%(2),y%(2)
  260 DIM a%(23)
  270 !mem=&1700
  280 FOR frame%=1 TO 23
  290 a%(frame%-1)=!mem
  300 CLS
  310 PRINT "Frame ";frame%
  320 t=20+360*SINRAD(3.75*frame%)
  330 FOR N%=0 TO 2
  340 x%(N%)=640+SINRAD(N%*120)*t
  350 y%(N%)=210+COSRAD(N%*120)*t
  360 NEXT
  370 IF RND(-1)
  380 FOR N%=0 TO 23
  390 PLOT 69,RND(1023)+SINRAD(frame%/23
*360)*40+128,RND(590)+COSRAD(frame%/23*3
60)*40
  400 NEXT
  410 MOVE x%(0),y%(0):MOVE x%(1),y%(1):
PLOT 87,x%(2),y%(2)
  420 IF RND(-TIME)
  430 x%=x%(0):y%=y%(0):f%=0:m%=10*t
  440 REPEAT
  450 PLOT 69,x%,y%
  460 t%=RND(3)-1
  470 x%=(x%+x%(t%))DIV 2:y%=(y%+y%(t%))
DIV 2
  480 IF POINT(x%,y%) f%=f%+1
  490 UNTIL f%=m%
  500 PRINT CHR$30;SPC8
  510 !screen=&6700
  520 CALL compress
  530 NEXT
  540 ENDPROC
  550 :
  560 DEF PROCplayback
  570 REPEAT
  580 !mem=&1700
  590 FOR N%=0 TO 22:!screen=&6700:!mem=
a%(N%):CALL expand:NEXT:FOR N%=22 TO 0 S
TEP -1:!screen=&6700:!mem=a%(N%):CALL ex
pand:NEXT
  600 UNTIL FALSE
  610 ENDPROC
```

Listing 7 – 3DMole

```
   10 REM >3DMole (Info7)
   20 REM By Morgan Henry
   30 REM For 32 bit machines
   40 REM (c) BAU December 1992
   50 :
   60 MODE 1
   70 ORIGIN 640,512
   80 MOUSE ON
   90 COLOUR 1,240,0,0
  100 COLOUR 2,0,0,240
  110 COLOUR 3,240,0,240
  120 s1%=1:s2%=2:n=20:m=360/n
  130 DIM x(n),y(n),z(n)
  140 FOR i%=1 TO n
  150 x(i%)=400*COSRAD(i%*m)
  160 y(i%)=350*SINRAD(i%*m*2)
  170 z(i%)=400*SINRAD(i%*m*3)
  180 NEXT
  190 x%=0:y%=0:d%=1500
  200 REPEAT
  210 CLS
  220 MOUSE a2%,a1%,b%
  230 a1%=a1%/2
  240 a2%=a2%/2
  250 IF b%=4 d%-=100
  260 IF b%=1 d%+=100
  270 GCOL 1,2:a2%-=4:PROCdraw
  280 GCOL 1,1:a2%+=8:PROCdraw
  290 WAIT
  300 SYS 6,113,s1%
  310 SYS 6,112,s2%
  320 SWAP s1%,s2%
  330 UNTIL FALSE
  340 :
  350 DEF PROCdraw
  360 cos1=COSRADa1%:sin1=SINRADa1%
  370 cos2=COSRADa2%:sin2=SINRADa2%
  380 FOR i%=1 TO n
  390 ox=x(i%):oy=y(i%):oz=z(i%)
  400 ny=oy*cos1-oz*sin1
  410 nz=oy*sin1+oz*cos1
  420 oy=ny:oz=nz
  430 nx=ox*cos2-oz*sin2
  440 nz=ox*sin2+oz*cos2-2000
  450 MOVE x%,y%
  460 x%=d%*nx/nz:y%=d%*ny/nz
  470 DRAW x%,y%
  480 CIRCLE FILL x%,y%,80+nz/40
  490 NEXT
  500 ENDPROC
```

Listing 8 – DialCodes

```
   10 REM >Dialcodes (Info8)
   20 REM By Daniel McFarne
   30 REM For all machies
   40 REM (C) BAU December 1992
   50 :
   60 PROCinit
   70 width=FNwidth
   80 REPEAT
   90 w$=""
  100 INPUT'"Number or string ";in$
  110 in$=FNadjust(in$)
  120 IF num PROCto_word(in$):PRINT
  130 IF let PROCto_number(in$):PRINT
  140 UNTIL FALSE
  150 END
  160 :
  170 DEF FNadjust(a$)
  180 b$=""
  190 i=0
  200 REPEAT
  210 i=i+1
  220 c$=MID$(a$,i,1)
  230 IF c$>="a" AND c$<="z" c$=CHR$(ASC
c$-32)
  240 num=(c$>="1" AND c$<="9")
  250 let=(c$>="A" AND c$<="Z")
  260 IF num OR let b$=b$+c$
  270 IF c$=" " let=TRUE
  280 UNTIL i=LENa$ OR (NOT num AND NOT
let)
  290 IF NOT num AND NOT let b$=""
  300 =b$
  310 :
  320 DEF PROCto_word(s$)
  330 IF s$="" PRINTw$;b$(-(POS+LENw$>=w
idth));:ENDPROC
  340 LOCAL i,d
  350 d=VALLEFT$(s$,1)
  360 FOR i=1 TO LENa$(d)
  370 w$=w$+MID$(a$(d),i,1)
  380 PROCto_word(MID$(s$,2))
  390 w$=LEFT$(w$,LENw$-1)
  400 NEXT
  410 ENDPROC
  420 :
  430 DEF PROCto_number(s$)
  440 FOR i=1 TO LENs$
  450 PRINT;n(ASCMID$(s$,i,1)-65);
  460 NEXT
  470 ENDPROC
  480 :
  490 DEF FNwidth
  500 i=0
  510 REPEAT
  520 VDU 9
  530 i=i+1
  540 UNTIL POS=0
  550 VDU 11
  560 =i
  570 :
  580 DEF PROCinit
  590 DIM a$(9),b$(1),n(25)
  600 FOR i=1 TO 9
  610 READ a$(i)
  620 FOR j=1 TO LENa$(i)
  630 n(ASCMID$(a$(i),j,1)-65)=i
  640 NEXT
  650 NEXT
  660 b$(0)=CHR$32
  670 b$(1)=CHR$10+CHR$13
  680 ENDPROC
  690 :
  700 DATA QZ,ABC,DEF,GHI,JKL,MNO,PRS,TU
V,WXY
```

Listing 9 – Ex-Get

```
   10 REM >Ex-GET (Info9)
   20 REM For all machines
   30 REM (c) BAU December 1992
   40 :
   50 DIM word$(9)
   60 FOR i=0 TO 9
   70 READ word$(i)
   80 PRINT ;i;") ";word$(i)
   90 NEXT i
  100 REPEAT
  110 PRINT '"Choose : ";
  120 REPEAT
  130 num=GET-ASC"0"
  140 UNTIL num>=0 AND num<=9
  150 PRINT word$(num)
  160 UNTIL FALSE
  170 :
  180 DATA Zero,One,Two,Three,Four,Five,
Six,Seven,Eight,Nine
```

Listing 10 – Ex-Inkey

```
   10 REM >Ex-INKEY (Info10)
   20 REM For all machines
   30 REM (c) BAU December 1992
   40 :
   50 MODE 4
   60 VDU 23;10,32;0;0;0;0;
   70 x=20
   80 ox=0
   90 fy=0
  100 REPEAT
  110 IF x<>ox PRINTTAB(x,30);" >+< "
  120 IF fy>0 PRINTTAB(fx,fy);" ":fy=fy-
1
  130 IF fy>0 PRINTTAB(fx,fy);"*"
  140 key$=INKEY$5
  150 IF (key$="Z" OR key$="z") AND x>0
x=x-1
  160 IF (key$="X" OR key$="x") AND x<34
 x=x+1
  170 IF key$=" " AND fy=0 fx=x+2:fy=29
  180 UNTIL FALSE
```

Listing 11 – Ex-Inkey-

```
   10 REM >Ex-INKEY- (Info11)
   20 REM For all machines
   30 REM (c) BAU December 1992
   40 :
   50 VDU 23;10,32;0;0;0;0;
   60 REPEAT
   70 PRINT "Keys pressed (A-G): ";
   80 RESTORE
```

```
90 FOR key=ASC"A" TO ASC"G"
100 READ code
110 IF INKEY-code VDU key ELSE VDU 32
120 NEXT
130 VDU 13
140 UNTIL FALSE
150 DATA 66,101,83,51,35,68,84
```

Listing 12 – Squares

```
10 REM >Squares (Info12)
20 REM by Robin Owens
30 REM for 32-bit machines
40 REM (c) BAU December 1992
50 :
60 MODE 9
70 OFF
80 PROCinit
90 CALL init
100 CALL new_random
110 PROCdraw_screen
120 REPEAT
130 IF INKEY(-82) PROCgo
140 IF INKEY(-68) PROCspeed
150 IF INKEY(-86) PROCnew
160 UNTIL INKEY(-17)
170 *FX 15,1
180 MODE 12
190 END
200 :
210 DEF PROCgo
220 PROCstop
230 CALL begin
240 PROCstop
250 REPEAT UNTIL NOT INKEY-82
260 ENDPROC
270 :
280 DEF PROCnew
290 CALL new_random
300 CALL draw
310 REPEAT UNTIL NOT INKEY-86
320 ENDPROC
330 :
340 DEF PROCdraw_screen
350 FOR c%=0 TO 15
360 READ r%,g%,b%
370 COLOUR c%,r%*16,g%*16,b%*16
380 NEXT
390 COLOUR 11
400 PROCstop
410 PROCspeed
420 PRINTTAB(32,12);"New   N"
430 PRINTTAB(32,20);"Quit  Q"
440 CALL draw
450 ENDPROC
460 :
470 DEF PROCstop
480 ?stop=1-?stop
490 PRINTTAB(32,8);
500 IF ?stop=1 PRINT"Stop  S" ELSE PRI
NT"Run   S"
510 ENDPROC
520 :
530 DEF PROCspeed
540 GCOL 0
550 t%=TIME
560 REPEAT UNTIL t%<(TIME-20)
570 *FX 15,1
580 ?speed=1-?speed
590 PRINTTAB(32,16);
600 IF ?speed=1 PRINT"Step  F" ELSE PR
INT"Fast  F"
610 ENDPROC
620 :
630 DEF PROCinit
640 DIM data1 256*256
650 DIM data2 256*256
660 DIM code 2000
670 max%=0:oldk%=1:k%=2:comp%=3:oldcom
p%=4
680 temp1%=3:temp2%=4:temp2%=4
690 xpos%=5:Ypos%=6:screen%=7:count%=8
700 new%=9:old%=10:seed%=11:mask%=12
710 osx%=11:osy%=12
720 FOR pass%=0 TO 2 STEP 2
730 P%=code
740 [OPT pass%
750 .asize  EQUD    256*256
760 .anew   EQUD    data1
770 .aold   EQUD    data2
780 .screen EQUD    148
790 EQUD    -1
800 .address
810 EQUD    0
820 .aseed  EQUD    TIME
830 .amask  EQUD    &1D872B41
840 .axstart
850 EQUD    31
860 .aystart
870 EQUD    0
880 .stop   EQUB    0
890 .speed  EQUB    1
900 ALIGN
910 .init   ADR     r0,screen
920 ADR     r1,address
930 SWI     "OS_ReadVduVariables"
940 MOV     PC,r14
950 .begin  STMFD   r13!,{r14}
960 .bloop  LDR     new%,anew
970 LDR     old%,aold
980 STR     new%,aold
990 STR     old%,anew
1000 LDRB    r0,speed
1010 CMP     r0,#1
1020 SWIEQ   "OS_ReadC"
1030 BL      check
1040 BL      draw
1050 SWI     "XOS_ReadEscapeState"
1060 BCS     exit
1070 MOV     r0,#129
1080 MOV     r1,#256-82
1090 MOV     r2,#255
1100 SWI     "XOS_Byte"
1110 CMP     r1,#255
1120 BNE     bloop
1130 .exit   MOV     r0,#126
1140 SWI     "XOS_Byte"
1150 LDMFD   r13!,{PC}
1160 .check  STMFD   r13!,{r0-r12,r14}
1170 LDR     max%,asize
1180 MOV     count%,max%
1190 LDR     old%,aold
1200 LDR     new%,anew
1210 .checkloop
1220 LDRB    oldk%,[old%,count%]
1230 SUBS    k%,oldk%,#1
1240 MOVMI   k%,#15
1250 ADD     comp%,count%,#256
1260 CMP     comp%,max%
1270 SUBGT   comp%,comp%,max%
1280 LDRB    oldcomp%,[old%,comp%]
1290 CMP     oldcomp%,k%
1300 STREQB  oldcomp%,[new%,count%]
1310 BEQ     endcheck
1320 SUB     comp%,count%,#256
1330 CMP     comp%,#0
1340 ADDLT   comp%,comp%,max%
1350 LDRB    oldcomp%,[old%,comp%]
1360 CMP     oldcomp%,k%
1370 STREQB  oldcomp%,[new%,count%]
1380 BEQ     endcheck
1390 ADD     comp%,count%,#1
1400 CMP     comp%,max%
1410 SUBGT   comp%,comp%,max%
1420 LDRB    oldcomp%,[old%,comp%]
1430 CMP     oldcomp%,k%
1440 STREQB  oldcomp%,[new%,count%]
1450 BEQ     endcheck
1460 SUB     comp%,count%,#1
1470 CMP     comp%,#0
1480 ADDLT   comp%,comp%,max%
1490 LDRB    oldcomp%,[old%,comp%]
1500 CMP     oldcomp%,k%
1510 STREQB  oldcomp%,[new%,count%]
1520 BEQ     endcheck
1530 STRB    oldk%,[new%,count%]
1540 .endcheck
1550 SUBS    count%,count%,#1
1560 BPL     checkloop
1570 LDMFD   r13!,{r0-r12,PC}
1580 .new_random
1590 STMFD   r13!,{r0-r12,r14}
1600 LDR     new%,anew
1610 LDR     old%,aold
1620 LDR     count%,asize
1630 LDR     seed%,aseed
1640 LDR     mask%,amask
1650 .newloop
1660 FNrndnumber(1,4)
1670 STRB    r1,[new%,count%]
1680 STRB    r1,[old%,count%]
1690 SUBS    count%,count%,#1
1700 BPL     newloop
1710 STR     seed%,aseed
1720 LDMFD   r13!,{r0-r12,PC}
1730 .draw   STMFD   r13!,{r0-r12,r14}
1740 LDR     screen%,address
1750 MOV     xpos%,#31
1760 LDR     screen%,address
1770 LDR     count%,asize
1780 LDR     new%,anew
1790 .xlloop LDRB    temp1%,[new%,count
%]
1800 SUB     count%,count%,#1
1810 LDRB    temp2%,[new%,count%]
1820 ORR     temp1%,temp1%,temp2%,LSL #
4
1830 SUB     count%,count%,#1
1840 LDRB    temp2%,[new%,count%]
1850 ORR     temp1%,temp1%,temp2%,LSL #
8
1860 SUB     count%,count%,#1
1870 LDRB    temp2%,[new%,count%]
1880 ORR     temp1%,temp1%,temp2%,LSL #
12
1890 SUB     count%,count%,#1
1900 LDRB    temp2%,[new%,count%]
1910 ORR     temp1%,temp1%,temp2%,LSL #
16
1920 SUB     count%,count%,#1
1930 LDRB    temp2%,[new%,count%]
1940 ORR     temp1%,temp1%,temp2%,LSL #
20
1950 SUB     count%,count%,#1
1960 LDRB    temp2%,[new%,count%]
1970 ORR     temp1%,temp1%,temp2%,LSL #
24
1980 SUB     count%,count%,#1
1990 LDRB    temp2%,[new%,count%]
2000 ORR     temp1%,temp1%,temp2%,LSL #
28
2010 STR     temp1%,[screen%],#4
2020 SUBS    xpos%,xpos%,#1
2030 MOVMI   xpos%,#31
2040 ADDMI   screen%,screen%,#32
2050 SUBS    count%,count%,#1
2060 BPL     xlloop
2070 LDMFD   r13!,{r0-r12,PC}
2080 ]
2090 NEXT
2100 ENDPROC
2110 :
2120 DEF FNrndnumber(re%,b%)
2130 [OPT pass%
2140 MOVS    seed%,seed%,LSL #1
2150 EORCS   seed%,seed%,mask%
2160 MOVCC   re%,#0
2170 MOVCS   re%,#1
2180 ]
2190 FOR i%=2 TO b%
2200 [OPT pass%
2210 MOVS    seed%,seed%,LSL #1
2220 EORCS   seed%,seed%,mask%
2230 ORRCS   re%,re%,#1<<(i%-1)
2240 ]
2250 NEXT
2260 =""
2270 :
2280 DATA 0,0,15 ,4,0,12 ,6,0,10 ,9,0,8
2290 DATA 12,0,6 ,15,0,3 ,15,3,0 ,12,6,
0
2300 DATA 9,8,0  ,6,10,0 ,4,12,0 ,0,15,
0
2310 DATA 0,13,4 ,0,11,7 ,0,7,11 ,0,4,1
3
```

Listing 13 – IFS2

```
10 REM >IFS2 (Info13)
20 REM by Gareth Eley
30 REM Additional IFS codes by Duncan
 Lilly
40 REM IFS file format by Dave Lawren
ce
50 REM For all machines
60 REM (c) BAU August & December 1992
70 :
80 arc=(HIMEM>&10000)
90 A%=0:Y%=0:dfs=((USR(&FFDA) AND &FF
)=4)
100 IF dfs ifsdir$="I" ELSE ifsdir$="I
FScodes"
110 ON ERROR GOTO 230
120 DIM a(12,4),b(12,2),P(12),name 16,
block 16
130 PROCfindifs
140 MODE 0
150 PROCsetupvars
160 PROCgetifs
170 REPEAT
180 PROCRenderIFS
190 PROCzoom
200 UNTIL FALSE
210 END
220 :
230 IF ERR=17 AND INKEY-2 THEN MODE0:E
ND
240 IF ERR=17 THEN 140
250 REPORT:PRINT ERL
260 END
270 :
280 DEF PROCsetupvars
290 VDU 23;10,95;0;0;0;0;
300 scale%=1000
310 VDU 29,140;12;
320 VDU 24,0;0;scale%-1;scale%-1;
330 max%=1E6
340 ENDPROC
350 :
360 DEF PROCRenderIFS
370 CLS
380 GCOL 0,1
390 PROCinitial
400 s=RND(-TIME)
410 xscale=scale%/(xmax-xmin)
420 yscale=scale%/(ymax-ymin)
430 N%=0
440 REPEAT
450  r=RND(1)
460  sum=0
470  K%=0
480  REPEAT
490   K%=K%+1
500   sum=sum+P(K%)
510  UNTIL sum>r
520  PROCtransform
530  P%=(x-xmin)*xscale:Q%=(y-ymin)*ys
cale
540  IF P%>0 AND P%<scale% AND Q%>0 AN
D Q%<scale% THEN PLOT 69,P%,Q%:N%=N%+1
550 UNTIL N%>max% OR INKEY-17
560 ENDPROC
570 :
580 DEF PROCtransform
590 x1=a(K%,1)*x+a(K%,2)*y+b(K%,1)
600 y1=a(K%,3)*x+a(K%,4)*y+b(K%,2)
610 x=x1:y=y1
620 ENDPROC
630 :
640 DEF PROCinitial
650 a11=a(1,1):a12=a(1,2):a21=a(1,3):a
22=a(1,4)
660 b1=b(1,1):b2=b(1,2)
670 A=(1-a11)
680 B=(a12*b2)/(1-a22)
690 C=(a21*a12)/(1-a22)
700 REM calc initial x & y coords
710 x=(b1+B)/(A-C)
720 y=(b2+a21*x)/(1-a22)
730 ENDPROC
740 :
750 DEF PROCzoom
760 X%=400:Y%=400
770 size%=200
780 IF arc THEN PROCmouse
790 GCOL 3,1
800 PROCrec(X%,Y%,size%)
810 REPEAT
820  *FX 19
830  PROCrec(X%,Y%,size%)
840  PROCgetpos
850  IF Z%=1 AND size%>100 size%=size%
-4
860  IF Z%=4 AND size%<scale% size%=si
ze%+4
870  PROCrec(X%,Y%,size%)
880 UNTIL Z%=2
890 xmin=xmin+X%/xscale:xmax=xmin+size
%/xscale
900 ymin=ymin+Y%/yscale:ymax=ymin+size
%/yscale
910 ENDPROC
920 :
930 DEF PROCmouse
940 MOUSE RECTANGLE 0,0,1140,1012
950 MOUSE TO X%,Y%
960 ENDPROC
970 :
980 DEF PROCrec(a,b,c)
990 MOVE a,b:DRAW a+c,b:DRAW a+c,b+c
1000 DRAW a,b+c:DRAW a,b
1010 ENDPROC
1020 :
1030 DEF PROCgetpos
1040 IF arc THEN MOUSE X%,Y%,Z%:ENDPROC
1050 Z%=0
1060 IF INKEY-1 THEN step%=32 ELSE step
%=4
1070 IF INKEY-26 AND X%>0 X%=X%-step%
1080 IF INKEY-122 AND X%<scale% X%=X%+s
tep%
1090 IF INKEY-42 AND Y%>0 Y%=Y%-step%
1100 IF INKEY-58 AND Y%<scale% Y%=Y%+st
ep%
1110 Z%=Z%-(INKEY-103)-2*(INKEY-99)-4*(
INKEY-104)
1120 ENDPROC
1130 :
1140 DEF PROCfindifs
1150 OSCLI"Dir "+ifsdir$
1160 file=0
1170 REPEATn$=FNnextname:UNTIL n$=""
1180 ifss=file
1190 file=0
1200 DIM ifs$(ifss-1),file$(ifss-1)
1210 FOR i=0 TO ifss-1
1220  file$(i)=FNnextname
1230  in=OPENIN(file$(i))
1240  ifs$(i)=FNline(in)
1250  CLOSE #in
1260 NEXT
1270 IF dfs OSCLI"Dir $" ELSE OSCLI"Dir
 ^"
1280 ENDPROC
1290 :
1300 DEF FNnextname
1310 IF arc SYS "OS_GBPB",8,,name,1,fil
e TO ,,,read,file ELSE PROCbbc_gbpb
1320 IF read=0 ?(name+?name+1)=13:n$=$(
name+1) ELSE n$=""
1330 =n$
1340 :
1350 DEF PROCbbc_gbpb
1360 block!1=name
1370 block!5=1
1380 block!9=file
1390 X%=block MOD 256
1400 Y%=block DIV 256
1410 A%=8
1420 CALL &FFD1
1430 read=block!5
1440 file=block!9
1450 ENDPROC
1460 :
1470 DEF FNline(fh)
1480 l$=""
1490 REPEAT
1500  c=BGET#fh
1510  IF c<>10 AND c<>13 AND NOT (c=32
AND l$="") l$=l$+CHR$c
1520 UNTIL c=10 OR c=13
1530 =l$
1540 :
1550 DEF PROCgetifs
1560 FOR i=0 TO ifss-1
1570  PRINTCHR$(i+65);") ";ifs$(i)
1580 NEXT
1590 PRINT'"Which image (A-";CHR$(ifss+
64);") ?";
1600 REPEATa=GET-65:UNTIL a>=0 AND a<if
ss
1610 PRINT;" ";ifs$(a);
1620 in=OPENIN(ifsdir$+"."+file$(a))
1630 n$=FNline(in)
1640 l$=""
1650 type=FNval
1660 xmin=FNval
1670 ymin=FNval
1680 xmax=FNval
1690 ymax=FNval
1700 num=0
1710 same=FALSE
1720 REPEAT
1730  PRINT".";
1740  num=num+1
1750  prob$=FNsym
1760  IF prob$="=" same=TRUE ELSE P(num
)=EVAL(LEFT$(prob$,LENprob$-1))/100
1770  IF type=0 PROCtype0 ELSE PROCtype
1
1780  b(num,1)=FNval
1790  b(num,2)=FNval
```

```
 1800 UNTIL EOF#in
 1810 CLOSE #in
 1820 IF same FOR i=1 TO num:P(i)=1/num:
NEXT
 1830 ENDPROC
 1840 :
 1850 DEF PROCtype0
 1860 FOR i=1 TO 4
 1870  a(num,i)=FNval
 1880 NEXT
 1890 ENDPROC
 1900 :
 1910 DEF PROCtype1
 1920 r=FNval:s=FNval:theta=FNval:phi=FN
val
 1930 a(num,1)=r*COSRAD(theta):a(num,2)=
-s*SINRAD(phi)
 1940 a(num,3)=r*SINRAD(theta):a(num,4)=
s*COSRAD(phi)
 1950 ENDPROC
 1960 :
 1970 DEF FNval=EVALFNsym
 1980 :
 1990 DEF FNsym
 2000 IF l$="" l$=FNline(in)+" "
 2010 q=0
 2020 REPEAT
 2030  q=q+1
 2040 UNTIL MID$(l$,q,1)=" "
 2050 s$=LEFT$(l$,q-1)
 2060 REPEAT
 2070  q=q+1
 2080 UNTIL MID$(l$,q,1)<>" "
 2090 l$=MID$(l$,q)
 2100 =s$
```

Listing 14 – Swirl

```
Swirl
0  -5     0     5     10
91% 0.75  -0.46 0.41  0.89 1.46 0.69
9%  -0.42 -0.07 -0.18 -0.22 3.81 6.74
```

Listing 15 – Dragon

```
Dragon
0   -6   -1   6     11
79% 0.82 0.28 -0.21 0.86  -1.88 -0.11
21% 0.09 0.52 -0.46 -0.38 0.79  8.10
```

You'll find more IFS listings on page 133.

Listing 16 – Stir

```
   10 REM >Stir (Info16)
   20 REM by Jan Vibe
   30 REM for 32-bit machines
   40 REM (c) BAU December 1992
   50 :
   60 MODE 13
   70 OFF
   80 FOR n%=1 TO 100
   90 PROCspot
  100 NEXT
  110 REPEAT
  120 s%=4*RND(101)+124
  130 s2%=2*s%
  140 w%=-RND(s%-1)
  150 h%=-RND(s%-1)
  160 q%=4
  170 IF RND(1)>0.5 q%=-4
  180 FOR i%=1 TO RND(64)
  190 IF RND(1)>0.7 PROCspot
  200 FOR n%=w% TO 1280 STEP s2%
  210 MOVE n%,0
  220 MOVE n%+s%-4,1020
  230 PLOT &BD,n%,q%
  240 NEXT
  250 FOR n%=h% TO 1024 STEP s2%
  260 MOVE 0,n%
  270 MOVE 1280,n%+s%-4
  280 PLOT &BD,q%,n%
  290 NEXT
  300 FOR n%=s%+w% TO 1280 STEP s2%
  310 MOVE n%,q%
  320 MOVE n%+s%-4,1020
  330 PLOT &BD,n%,0
  340 NEXT
  350 FOR n%=s%+h% TO 1024 STEP s2%
  360 MOVE q%,n%
  370 MOVE 1280,n%+s%-4
  380 PLOT &BD,0,n%
  390 NEXT
  400 NEXT
  410 UNTIL FALSE
  420 :
  430 DEF PROCspot
  440 GCOL RND(63)
  450 CIRCLE FILL RND(1280),RND(1024),RN
D(128)
  460 GCOL RND(63)+128
  470 ENDPROC
```

Listing 17 – Ball12

```
   10 REM >Ball12 (Info17)
   20 REM by Jan Vibe
   30 REM for 32-bit machines
   40 REM (c) BAU December 1992
   50 :
   60 MODE 12
   70 OFF
   80 FOR n%=1 TO 15
   90 COLOUR 16-n%,16*n%,16*n%,16*n%
  100 NEXT
  110 r%=200
  120 hx%=r%*0.3
  130 hy%=r%*0.6
  140 z%=(SQR(hx%^2+hy%^2)+r%)/15
  150 FOR y%=-r% TO r% STEP 4
  160 b%=SQR(r%^2-y%^2)
  170 FOR x%=-b% TO b% STEP 2
  180 c%=(SQR((hx%-x%)^2+(hy%-y%)^2)+RND
(3*z%)-1.5*z%)/z%+.5
  190 IF c%<1 c%=1
  200 IF c%>15 c%=15
  210 GCOL c%
  220 POINT x%+r%,y%+r%
  230 NEXT
  240 NEXT
  250 END
```

Listing 18 – Tentacles

```
   10 REM >Tentacles (Info18)
   20 REM by Jan Vibe
   30 REM for 32-bit machines
   40 REM (c) BAU December 1992
   50 :
   60 MODE 12
   70 OFF
   80 COLOUR 0,0,0,240
   90 VDU 19,0,24,0,0,240
  100 COLOUR 15
  110 DIM spr &8000,sz% &10
  120 DIM a%(200),dx%(200),dy%(200),tx%(
200),ty%(200)
  130 spr!0=&7FFF
  140 spr!4=0
  150 spr!8=16
  160 spr!12=16
  170 sz%!00=256
  180 sz%!04=256
  190 sz%!08=256
  200 sz%!12=256
  210 br%=160
  220 bd%=2*br%
  230 PRINT'"This program may generate t
he most disgusting picture you have"
  240 PRINT"ever seen on a computer scre
en. To do this, it has to create the"
  250 PRINT"sprite you see below. Please
 wait..."
  260 FOR n%=1 TO 15
  270 COLOUR n%,7*n%+150,16*n%,16*n%
  280 NEXT
  290 xc%=br%
  300 yc%=br%
  310 r%=br%
  320 xp%=.4*r%
  330 yp%=.7*r%
  340 r2%=r%^2
  350 d%=(r%*2.4)/16
  360 FOR y%=-r% TO r% STEP 4
  370 b%=SQR(r2%-y%^2)
  380 FOR x%=-b% TO b% STEP 2
  390 c%=15-(SQR((x%-xp%)^2+(y%-yp%)^2)-
RND(2*d%)+d%)/d%
  400 IF c%>15 c%=15
  410 IF c%<1 c%=1
  420 GCOL c%
  430 POINT x%+xc%,y%+yc%
  440 NEXT
  450 NEXT
  460 SYS "OS_SpriteOp",256+16,spr,"ball
",0,0,0,bd%,bd%
  470 SYS "OS_SpriteOp",256+29,spr,"ball
"
  480 SYS "OS_SpriteOp",256+61,spr,"ball
",0
  490 GCOL 0
  500 RECTANGLE FILL 0,0,bd%
  510 GCOL 15
  520 FOR y%=-r% TO r% STEP 4
  530 b%=SQR(r2%-y%^2)
  540 LINE -b%+xc%,y%+yc%,b%+xc%,y%+yc%
  550 NEXT
  560 SYS "OS_SpriteOp",256+61,spr,0,0
  570 CLS
  580 OFF
  590 :
  600 q%=0
  610 REPEAT
  620 c%=0
  630 REPEAT
  640 x%=RND(1280)
  650 y%=RND(1024):c%+=1
  660 UNTIL POINT(x%,y%)=0 OR c%>=5000
  670 IF c%<5000 THEN
  680 q%+=1
  690 a%(q%)=RND(360)
  700 tx%(q%)=x%
  710 ty%(q%)=y%
  720 SYS "OS_SpriteOp",256+52,spr,"ball
",tx%(q%)-br%,ty%(q%)-br%,8,sz%,0
  730 ENDIF
  740 UNTIL c%>=5000
  750 :
  760 z%=256
  770 REPEAT
  780 z%+=12
  790 dm%=bd%*256/z%
  800 b%=-br%*256/z%
  810 sz%!08=z%
  820 sz%!12=z%
  830 FOR n%=1 TO q%
  840 a%(n%)+=(RND(3)-2)*30
  850 t=RADa%(n%)
  860 dx%(n%)+=4*SIN(t)
  870 dy%(n%)+=4*COS(t)
  880 x%=tx%(n%)+b%+dx%(n%)
  890 y%=ty%(n%)+b%+dy%(n%)
  900 SYS "OS_SpriteOp",256+52,spr,"ball
",x%,y%,8,sz%,0
  910 NEXT
  920 UNTIL dm%<=32
  930 IF GET
  940 END
```

Listing 19 – MakeApp

```
   10 REM >MakeApp - Make !Boot,!Run,!Sp
rites,Templates,and menu files (Info19)
   20 REM By Phillip Rogers
   30 REM For 32-bit machines
   40 REM (c) BAU December 1992
   50 :
   60 PRINT"Creating application directo
ry"
   70 ONERROR REPORT:PRINT" at line ";ER
L:END
   80 *CDIR !TVControl
   90 *DIR !TVControl
  100 DIM check% 8
  110 PROCcreate_boot      :PRINT"!Boot f
ile created."
  120 PROCcreate_run       :PRINT"!Run fi
le created."
  130 PROCcreate_sprites   :PRINT"!Sprite
s file created."
  140 PROCcreate_templates:PRINT"Templat
es file created."
  150 PROCcreate_menus     :PRINT"Menus f
ile created."
  160 PRINT"Application created, copy !R
unimage inside it"
  170 END
  180 :
  190 DEF PROCcreate_boot
  200 file%=OPENOUT"!Boot"
  210 BPUT#file%,"| !Boot file for TV Co
ntrol"
  220 BPUT#file%,"Set TVControl$Dir <Obe
y$Dir>"
  230 BPUT#file%,"Iconsprites <TVControl
$Dir>.!Sprites"
  240 CLOSE#file%
  250 *SETTYPE !Boot Obey
  260 ENDPROC
  270 :
  280 DEF PROCcreate_run
  290 file%=OPENOUT"!Run"
  300 BPUT#file%,"| !Run file for TV Con
trol"
  310 BPUT#file%,"|"
  320 BPUT#file%,"Set TVControl$Dir <Obe
y$Dir>"
  330 BPUT#file%,"Iconsprites <TVControl
$Dir>.!Sprites"
  340 BPUT#file%,"WimpSlot -min 32k -max
 32k"
  350 BPUT#file%,"Run <TVControl$Dir>.!R
unimage"
  360 CLOSE#file%
  370 *SETTYPE !Run Obey
  380 ENDPROC
  390 :
  400 DEF PROCcreate_sprites
  410 file%=OPENOUT"!Sprites"
  420 REPEAT UNTIL FNread
  430 CLOSE#file%
  440 *SETTYPE !Sprites Sprite
  450 ENDPROC
  460 :
  470 DEF PROCcreate_templates
  480 file%=OPENOUT"Templates"
  490 REPEAT UNTIL FNread
  500 CLOSE#file%
  510 *SETTYPE Templates Template
  520 ENDPROC
  530 :
  540 DEF PROCcreate_menus
  550 file%=OPENOUT"Menus"
  560 REPEAT UNTIL FNread
  570 CLOSE#file%
  580 *SETTYPE Menus Data
  590 ENDPROC
  600 :
  610 DEF FNread
  620 READ num$,compare$
  630 IF num$<>"END" THEN
  640 num2%=EVAL("&"+RIGHT$(num$,8))
  650 num1%=EVAL("&"+LEFT$(num$,8))
  660 compare%=EVAL("&"+compare$)
  670 !check%=num1%:check%!4=num2%
  680 checksum%=(check%?0+check%?1+check
%?2+check%?3+check%?4+check%?5+check%?6+
check%?7) MOD256
  690 IF checksum%<>compare% PRINT"Check
sum error. (Templates) : ";num$:CLOSE#fi
le%:END
  700 FOR A%=0 TO 7
  710 BPUT #file%,check%?A%
  720 NEXT
  730 ENDIF
  740 =(num$="END")
  750 :
  760 DATA 0000000100000010,11,000001900
0000180,12
  770 DATA 6376742172746E6F,31,00006C6F0
0000004,DF
  780 DATA 0000001000000000,10,000000070
000002C,33
  790 DATA 0000002C0000000C,38,0000000C0
0000000,0C
  800 DATA 0000000000000000,00,11111150C
CCCCCC0,A7
  810 DATA CCCCCCCCCCCCCCCC,60,CCCCCCCC1
111115C,BF
  820 DATA 222222CC22222222,BA,222222222
2222222,10
  830 DATA 1111115C755432C0,4A,777777777
7777777,B8
  840 DATA 214557771111115C,C3,444532CC4
4444444,97
  850 DATA 4444444421744444,2D,1111115C3
34732CC,07
  860 DATA 3222221333333333,55,217400331
111115C,57
  870 DATA 333732C032111113,C3,333333332
1730333,96
  880 DATA 1111115C77777777,6B,777777777
7777777,B8
  890 DATA 7777777711111177,86,777777777
7777777,B8
  900 DATA 1111111111111111,88,111111717
7777777,80
  910 DATA 7777777711111111,20,111111111
1111171,E8
  920 DATA 7777777777777777,B8,111111881
1111111,FF
  930 DATA 1111117177777777,80,777777777
77788F8,4A
  940 DATA 7777777711111177,86,755432C07
7777777,97
  950 DATA 7788FFF821455777,2A,1111115C2
22222C0,B5
  960 DATA 2222222288FFFFF8,06,222222281
111115C,1D
  970 DATA CCCCCCC0CCC3CCCC,4B,FFFFFFF8C
C3CA88F,34
  980 DATA 1111115CFFB9FCCC,0F,CCC3CCCC8
8FFFFF8,A5
  990 DATA CC3CC8880000005C,B4,949493119
4949494,1C
 1000 DATA 8FF888F853939494,15,000000110
0000000,11
 1010 DATA END,END
 1020 :
 1030 DATA FFFFFFFF00000000,FC,000000000
0000000,00
 1040 DATA 00000044000001F7,3C,000000016
F666E49,8D
 1050 DATA 0000000D00000000,0D,0000023B0
0000347,87
 1060 DATA 0000000165726373,AE,6F636E650
0000D6C,1E
 1070 DATA 0000000000000112,13,000001200
0000386,AA
 1080 DATA 000001FC00000000,FD,00000000F
FFFFFFF,FC
 1090 DATA 8400001201070207,A7,000C01030
0000000,10
 1100 DATA FFFFFC0000000500,FF,000000000
000013D,3E
 1110 DATA 0000300000000001,31,000000000
0000178,79
 1120 DATA FFFFFFFF00000013,0F,000000090
000009A,A3
 1130 DATA FFFFFFCC00000266,31,FFFFFFFC0
700613D,9E
 1140 DATA 0000018BFFFFFFFF,88,000000280
000009A,C2
 1150 DATA FFFFFF9800000266,FD,FFFFFFC80
700613D,6A
 1160 DATA 00000196FFFFFFFF,93,000000280
000009A,C2
 1170 DATA FFFFFF6400000266,C9,FFFFFF940
700613D,36
 1180 DATA 000001B1FFFFFFFF,AE,000000280
000009A,C2
 1190 DATA FFFFFF3000000266,95,FFFFFF600
700613D,02
 1200 DATA 000001C7FFFFFFFF,C4,0000001E0
000009A,B8
 1210 DATA FFFFFF3000000266,95,FFFFFF600
780613D,82
 1220 DATA 000001DFFFFFFFFF,DC,0000001E0
000003E,5C
 1230 DATA FFFFFFD00000009A,67,FFFFFFF81
7000039,45
 1240 DATA 656D614E656C0D3A,99,FE0D3E640
000000E,BB
 1250 DATA FFFFFF9C0000009A,33,FFFFFFC41
7000039,11
 1260 DATA 707275503A65736F,28,FE0D3E0D0
000001E,74
 1270 DATA FFFFFF680000009A,FF,FFFFFF901
7000039,DD
 1280 DATA 687475410D3A726F,BA,FE0D3E640
000000E,BB
 1290 DATA FFFFFF380000009A,CF,FFFFFF601
7000039,AD
 1300 DATA 737265563A6E6F69,20,FE0D3E0D7
56F6241,DD
 1310 DATA 6874207450207369,BC,72676F725
40D6D61,E9
 1320 DATA 6F4320566F72746E,EB,56540D6C6
E6F6320,83
 1330 DATA 6C6F72746E6F2073,31,656874207
3656420,BD
 1340 DATA 706F746B5020A90D,E4,6C6C69685
2207069,F4
 1350 DATA 7265676F39312073,AA,320D32392
030302E,58
 1360 DATA 7437312875412068,42,747375673
9393120,86
 1370 DATA 320D29322030302E,48,743731287
5412068,42
 1380 DATA 7473756739393120,86,8A0D29326
0000001,53
```

```
 1390 DATA 7E00000128000003,AA,000000020
0000000,02
 1400 DATA FF00000012FFFFFF,0E,078F21000
3010702,C4
 1410 DATA 00000C0104000000,11,F4FFFFFE0
0000001,F1
 1420 DATA 3D00000000000000,3D,010000300
1000000,32
 1430 DATA 540000006F432056,7C,6F72746E1
70D736C,C6
 1440 DATA 12000000B4000000,C6,D4FFFFFFE
8000000,B9
 1450 DATA 3DFFFFFF43070060,E4,72746E6F0
D747361,18
 1460 DATA 127F0D7378000000,89,D4FFFFFFA
C000000,7D
 1470 DATA 3DFFFFFF42070060,E3,686769727
3656E74,64
 1480 DATA 127F0D733C000000,4D,D4FFFFFF7
0000000,41
 1490 DATA 3DFFFFFF43070060,E4,756F6C6F0
D740D72,BF
 1500 DATA E47F0D73C0000000,A3,8CFFFFFFD
8000001,62
 1510 DATA 3CFFFFFF3C770060,4C,69746E556
4656C74,49
 1520 DATA E47F0D3E84000000,32,8CFFFFFF9
C000001,26
 1530 DATA 3CFFFFFF3C770060,4C,69746E556
4656C74,49
 1540 DATA E47F0D3E48000000,F6,8CFFFFFF6
0000001,EA
 1550 DATA 3CFFFFFF3C770060,4C,69746E556
4656C74,49
 1560 DATA E47F0D3EC0000000,6E,E6FFFFFFD
8000001,BC
 1570 DATA 1CFFFFFF3CC70020,3C,69746E556
4656C74,49
 1580 DATA E47F0D3E84000000,32,E6FFFFFF9
C000001,80
 1590 DATA 1CFFFFFF3CC70020,3C,69746E556
4656C74,49
 1600 DATA E47F0D3E48000000,F6,E6FFFFFF6
0000001,44
 1610 DATA 1CFFFFFF3CC70020,3C,69746E556
4656C74,49
 1620 DATA 607F0D3EA8000001,D3,64FFFFFFC
4000001,26
 1630 DATA 1CFFFFFF3CC70060,7C,69746E556
4656C74,49
 1640 DATA 607F0D3E6C000001,97,64FFFFFF8
8000001,EA
 1650 DATA 1CFFFFFF3CC70060,7C,69746E556
4656C74,49
 1660 DATA 107F0D3E0C000000,E6,E4FFFFFE2
0000001,01
 1670 DATA 1CFFFFFF3CC70060,7C,69746E556
4656C74,49
 1680 DATA 327F0D3E04000000,00,1AFFFFFF3
4000001,4C
 1690 DATA 3DFFFFFF38070061,DA,FF0000030
EFFFFFF,0D
 1700 DATA 20000000CC000000,EC,00FFFFFEF
C000001,F9
 1710 DATA 3DFFFFFE43C80060,A4,756F6C6F6
4650D72,07
 1720 DATA 207F0D3E94000000,7E,ACFFFFFEC
4000000,6C
 1730 DATA 3DFFFFFE52B00060,9B,6E0D64656
4650D0D,27
 1740 DATA B87F0D3E94000000,16,44FFFFFEC
4000001,05
 1750 DATA 3DFFFFFE47A00060,80,6E6565726
4650D0D,8D
 1760 DATA 4C7F0D3E94000001,AB,D8FFFFFEC
4000001,99
 1770 DATA 3DFFFFFE42800060,5B,0D65756C6
4650D0D,36
 1780 DATA 207F0D3E5C000000,46,ACFFFFFE8
C000000,34
 1790 DATA 3DFFFFFE59900060,82,6F6C6C656
4650D77,F9
 1800 DATA B87F0D3E5C000000,DE,44FFFFFE8
C000001,CD
 1810 DATA 3DFFFFFE43F00060,CC,0D6E61796
4650D0D,38
 1820 DATA 4E7F0D3E5C000001,75,DAFFFFFE8
C000001,63
 1830 DATA 3DFFFFFE4D0B0060,F1,6E6567616
40D6174,E1
 1840 DATA 247F0D3E18000000,06,DCFFFFFE5
0000001,29
 1850 DATA 35FFFFFE43070060,DB,657272753
A20746E,FA
 1860 DATA BC00000D1C000000,E5,D6FFFFFE4
C000001,1F
 1870 DATA 39FFFFFE46070061,E3,FF0000030
CFFFFFF,0B
 1880 DATA 09000000CC000001,D6,D6FFFFFEF
C000001,CF
 1890 DATA 3DFFFFFE42070060,E2,6B63616C6
968572F,F2
 1900 DATA 530D657465657263,D8,6F43206E7
2756F6C,02
 1910 DATA 00000D0D00000000,1A
 1920 DATA END,END
 1930 :
 1940 DATA 4320565472746E6F,D0,000D6C6F0
0070207,F8
 1950 DATA 000000AC00000028,D4,000000000
0000000,00
 1960 DATA 8888888807010021,49,6F666E490
000000D,99
 1970 DATA 0000000000000000,00,FFFFFFFF0
7010021,25
 1980 DATA 657365526F432074,D5,670D736C0
0000080,D3
 1990 DATA FFFFFFFF07010021,25,746975510
000000D,B0
 2000 DATA 0000000000000000,00,000000000
0000000,00
 2010 DATA END,END
```

Listing 20 – !Runimage

```
   10 REM ><TVControl$Dir>.!RunImage (In
fo20)
   20 REM By Phillip Rogers
   30 REM For 32-bit machines
   40 REM (c) BAU December 1992
   50 :
   60 SYS "Wimp_Initialise",200,&4B53415
4,"TV Controls" TO ,apphandle%
   70 ONERROR PROCwimperror
   80 PROCinit
   90 PROCtemplates
  100 PROCreadcolours
  110 PROCcreatemenus
  120 PROCgetscreenvars
  130 PROCicon_on_bar("!TVcontrol")
  140 ON ERROR PROCwimperror
  150 IF noofcols%<>16 PROCsenderror("Th
is program may not function properly in
this mode. (Only for 16 colour modes)")
  160 REPEAT
  170 SYS "Wimp_Poll",,w% TO d%
  180 CASE d% OF
  190 WHEN 0:
  200 MOUSE x,y,b
  210 IF b=0 AND trap% THEN
  220 MOUSE RECTANGLE 0,0,xlength%,yleng
th%
  230 trap%=FALSE
  240 ENDIF
  250 IF upd% b%=4:PROCsetcolours:upd%=F
ALSE
  260 WHEN 2:PROCopenwimp
  270 WHEN 3:PROCclose
  280 WHEN 6:PROCprocessmouse
  290 WHEN 9:PROCmenuchoice
  300 WHEN 17,18:PROCmessage
  310 ENDCASE
  320 UNTIL quit%
  330 PROCclosedown
  340 END
  350 :
  360 DEF PROCinit
  370 DIM window% 1000,ind% &500,w% 255,
v% 255,mb% 120,iconbar% 20,p% 100
  380 indblk%=ind%
  390 quit%=FALSE
  400 brightness%=256
  410 contrast%=0
  420 trap%=FALSE
  430 colour%=0
  440 upd%=FALSE
  450 ENDPROC
  460 :
  470 DEF PROCtemplates
  480 SYS "Wimp_OpenTemplate",,"<TVContr
ol$Dir>.Templates"
  490 infobox%=FNwindow("info")
  500 mainwindow%=FNwindow("screencol")
  510 SYS "Wimp_CloseTemplate"
  520 ENDPROC
  530 :
  540 DEF FNwindow(window$)
  550 SYS "Wimp_LoadTemplate",,window%,i
ndblk%,ind%+&500,-1,window$ TO ,,indblk%
  560 SYS "Wimp_CreateWindow",,window% T
O handle%
  570 =handle%
  580 :
  590 DEF PROCcreatemenus
  600 OSCLI"LOAD <TVControl$Dir>.menus "
+STR$~mb%
  610 menu%=mb%:mln%=128
  620 ENDPROC
  630 :
  640 DEF PROCmenuchoice
  650 SYS "Wimp_GetPointerInfo",,v%
  660 remain%=v%!8=1:I%=0
  670 REPEAT
  680 v%!I%=w%!I%
  690 I%+=4
  700 UNTIL w%!(I%-4)=-1
  710 msel%=v%!0
  720 IF msel%=1 THEN
  730 brightness%=256
  740 contrast%=0
  750 colour%=0
  760 PROCresizeicon(3,((256-contrast%)/
2))
  770 PROCresizeicon(4,brightness%/2)
  780 PROCresizeicon(5,260-colour%)
  790 PROCsetcolours
  800 ENDIF
  810 IF msel%=2 quit%=TRUE
  820 IF remain% SYS "Wimp_CreateMenu",,
menu%,cx%,cy%:remain%=FALSE
  830 ENDPROC
  840 :
  850 DEF PROCplacemenu(m%,icon%,x%,y%)
  860 SYS "Wimp_CreateMenu",,m%,x%,y%
  870 cx%=x%:cy%=y%
  880 ENDPROC
  890 :
  900 DEF PROCwimperror
  910 !w%=ERR:$(w%+4)=REPORT$+" occured
at line "+STR$ERL+CHR$0
  920 SYS "Wimp_ReportError",w%,3,"TV Co
ntrol" TO ,r
  930 quit%=r<>1
  940 IF quit% PROCclosedowNFALSEn:END
  950 ENDPROC
  960 :
  970 DEF PROCsenderror(msg$)
  980 !w%=1:$(v%+4)=msg$
  990 SYS "Wimp_ReportError",v%,1,"TV Co
ntrol"
 1000 ENDPROC
 1010 :
 1020 DEF PROCclosedown
 1030 SYS "Wimp_CloseDown",&4B534154,app
handle%
 1040 ENDPROC
 1050 :
 1060 DEF PROCclose
 1070 SYS "Wimp_CloseWindow",,w%
 1080 ENDPROC
 1090 :
 1100 DEF PROCopenwimp
 1110 SYS "Wimp_OpenWindow",,w%
 1120 ENDPROC
 1130 :
 1140 DEF PROCopenwindow(whandle%)
 1150 !w%=whandle%
 1160 SYS "Wimp_GetWindowState",,w%
 1170 w%!28=-1
 1180 SYS "Wimp_OpenWindow",,w%
 1190 ENDPROC
 1200 :
 1210 DEF PROCprocessmouse
 1220 LOCAL x%,y%,b%,h%,i%
 1230 x%=w%!0:y%=w%!4:b%=w%!8:h%=w%!12:i
%=w%!16
 1240 CASE h% OF
 1250 WHEN -2:PROCmouseiconbar(b%,i%)
 1260 WHEN mainwindow%:PROCmouseTV(b%,i%
)
 1270 ENDCASE
 1280 ENDPROC
 1290 :
 1300 DEF PROCmouseiconbar(b%,i%)
 1310 CASE b% OF
 1320 WHEN 4,1:
 1330 PROCopenwindow(mainwindow%)
 1340 PROCresizeicon(3,((256-contrast%)/
2))
 1350 PROCresizeicon(4,brightness%/2)
 1360 PROCresizeicon(5,256-colour%)
 1370 WHEN 2:
 1380 mb%!32=infobox%
 1390 PROCplacemenu(menu%;i%,x%-mln%/2,3
*44+96)
 1400 ENDCASE
 1410 ENDPROC
 1420 :
 1430 DEF PROCmouseTV(b%,i%)
 1440 CASE b% OF
 1450 WHEN 4,1:
 1460 CASE i% OF
 1470 WHEN 6:
 1480 !w%=mainwindow%
 1490 SYS "Wimp_GetWindowState",,w%
 1500 MOUSE x,y,b
 1510 mx%=x-w%!4-228
 1520 contrast%=(mx%*2)-256
 1530 big%=(w%!16-w%!8)>300
 1540 IF big% THEN
 1550 MOUSE RECTANGLE w%!4+228,w%!8+444,
256,16
 1560 trap%=TRUE
 1570 ELSE
 1580 MOUSE RECTANGLE w%!4+228,w%!8+138,
256,16
 1590 trap%=TRUE
 1600 ENDIF
 1610 PROCresizeicon(3,mx%)
 1620 PROCsetcolours
 1630 WHEN 7:
 1640 !w%=mainwindow%
 1650 SYS "Wimp_GetWindowState",,w%
 1660 MOUSE x,y,b
 1670 mx%=x-w%!4-228
 1680 brightness%=mx%*2
 1690 big%=(w%!16-w%!8)>300
 1700 IF big% THEN
 1710 MOUSE RECTANGLE w%!4+228,w%!8+384,
256,16
 1720 trap%=TRUE
 1730 ELSE
 1740 MOUSE RECTANGLE w%!4+228,w%!8+78,2
56,16
 1750 trap%=TRUE
 1760 ENDIF
 1770 PROCresizeicon(4,mx%)
 1780 PROCsetcolours
 1790 WHEN 8:
 1800 !w%=mainwindow%
 1810 SYS "Wimp_GetWindowState",,w%
 1820 MOUSE x,y,b
 1830 mx%=x-w%!4-228
 1840 colour%=256-mx%
 1850 big%=(w%!16-w%!8)>300
 1860 IF big% THEN
 1870 MOUSE RECTANGLE w%!4+228,w%!8+324,
256,16
 1880 trap%=TRUE
 1890 ELSE
 1900 MOUSE RECTANGLE w%!4+228,w%!8+18,2
56,16
 1910 trap%=TRUE
 1920 ENDIF
 1930 PROCresizeicon(5,mx%)
 1940 PROCsetcolours
 1950 WHEN 13,14,15,16,17,18,19:
 1960 PROCbasecolour(i%-12)
 1970 WHEN 22:
 1980 PROCbasecolour(8):
 1990 ENDCASE
 2000 WHEN 2:
 2010 mb%!32=infobox%
 2020 PROCplacemenu(menu%,i%,x%-mln%/2,y
%)
 2030 ENDCASE
 2040 ENDPROC
 2050 :
 2060 DEF FNc(c%)
 2070 V%=contrast%+(c%*brightness%) DIV
256
 2080 IF V%<0 THEN =0
 2090 IF V%>255 THEN =255
 2100 =V%
 2110 :
 2120 DEF PROCreadcolours
 2130 DIM cols(19,3),colrgb(3)
 2140 SYS "Wimp_ReadPalette",,p%
 2150 FOR A%=0 TO 77 STEP 4
 2160 FOR B%=1 TO 3
 2170 cols(A% DIV 4,B%)=A%?(p%+B%)
 2180 NEXT
 2190 NEXT
 2200 DIM colour(19)
 2210 FOR A%=0 TO 19
 2220 colour(A%)=(cols(A%,2)*2)+(cols(A%
,3)*4)+(cols(A%,1)*8)
 2230 colour(A%)=(colour(A%) DIV 16):NEX
T
 2240 colrgb(1)=-1:colrgb(2)=-1:colrgb(3
)=-1
 2250 DIM basecol(8,3),col$(8)
 2260 FOR A%=1 TO 8
 2270 READ col$(A%)
 2280 FOR B%=1 TO 3
 2290 READ basecol(A%,B%)
 2300 NEXT
 2310 NEXT
 2320 DATA "Colour",-1,-1,-1
 2330 DATA "Red",-1,0,0
 2340 DATA "Green",0,-1,0
 2350 DATA "Blue",0,0,-1
 2360 DATA "Yellow",-1,-1,0
 2370 DATA "Cyan",0,-1,-1
 2380 DATA "Magenta",-1,0,-1
 2390 DATA "Black/White",-1,-1,-1
 2400 ENDPROC
 2410 :
 2420 DEF PROCsetcolours
 2430 FOR C%=0 TO 77 STEP 4
 2440 FOR B%=1 TO 3
 2450 IF colrgb(B%)<>-1 THEN
 2460 d%=cols(C% DIV 4,B%)-colrgb(B%)
 2470 c%=cols(C% DIV 4,B%)-((d%/256)*col
our%)
 2480 ELSE
 2490 d%=colour(C% DIV4)-cols(C% DIV 4,B
%)
 2500 c%=cols(C% DIV 4,B%)+((d%/256)*col
our%)
 2510 ENDIF
 2520 C%?(p%+B%)=FNc(c%)
 2530 NEXT
 2540 NEXT
 2550 SYS "Wimp_SetPalette",,p%
 2560 IF b%=4 THEN
 2570 PROCgetscreenvars
 2580 IF noofcols%<>16 THEN
 2590 MOUSE x,y,b
 2600 SYS "Wimp_SetMode",MODE
 2610 MOUSE TO x,y
 2620 upd%=FALSE
 2630 ELSE
 2640 upd%=TRUE
 2650 ENDIF
 2660 ELSE
 2670 upd%=TRUE
 2680 ENDIF
 2690 ENDPROC
 2700 :
 2710 DEF PROCicon_on_bar(spname$)
 2720 w%!0=-1:w%!4=0:w%!8=0:w%!12=64
 2730 w%!16=64:w%!20=&2182
 2740 w%!24=iconbar%:w%!28=1
 2750 w%!32=LEN(spname$):$iconbar%=spnam
e$
 2760 SYS "XWimp_CreateIcon",,w% TO icon
barhandle%:ENDPROC
 2770 DEF PROCmessage
 2780 IF w%!16=0 quit%=TRUE
 2790 ENDPROC
 2800 :
 2810 DEF PROCresizeicon(icon%,length%)
 2820 !w%=mainwindow%:w%!4=icon%
 2830 SYS "Wimp_GetIconState",,w%:w%!16=
w%!8+length%
 2840 !v%=mainwindow%:v%!4=icon%:SYS "Wi
mp_DeleteIcon",,v%
 2850 FORA%=0TO31STEP4:v%!(A%+4)=w%!(A%+
8):NEXT
 2860 !v%=mainwindow%:SYS "Wimp_CreateIc
on",,v% TO ic%
 2870 !w%=mainwindow%:w%!4=icon%
 2880 SYS "Wimp_GetIconState",,w%
 2890 SYS "Wimp_ForceRedraw",mainwindow%
,w%!8-4,w%!12,w%!16+256,w%!20
 2900 ENDPROC
 2910 :
 2920 DEF PROCbasecolour(col%)
 2930 FORB%=1TO3
```

```
2940 colrgb(B%)=basecol(col%,B%)
2950 NEXT
2960 v%!Ø=mainwindow%:v%!4=21:SYS "Wimp
_GetIconState",,v%
2970 $(!(v%+28))=col$(col%)
2980 !v%=mainwindow%:v%!4=21:v%!8=Ø:v%!
12=Ø:SYS "Wimp_SetIconState",,v%
2990 IF col%<>1 colour%=256:PROCresizei
con(5,256-colour%):PROCsetcolours ELSE c
olour%=Ø:PROCresizeicon(5,256-colour%):P
ROCsetcolours
3000 ENDPROC
3010 :
3020 DEF PROCgetscreenvars
3030 SYS "OS_ReadModeVariable",MODE,4 T
O ,,xratio%
3040 xratio%=xratio%*2:IF xratio%=Ø xra
tio%=1
3050 SYS "OS_ReadModeVariable",MODE,5 T
O ,,yratio%
3060 yratio%=yratio%*2:IF yratio%=Ø yra
tio%=1
3070 SYS "OS_ReadModeVariable",MODE,11
TO ,,xpixels%
3080 xlength%=((xpixels%+1)*xratio%)-1
3090 SYS "OS_ReadModeVariable",MODE,12
TO ,,ypixels%
3100 ylength%=((ypixels%+1)*yratio%)-1
3110 SYS "OS_ReadModeVariable",MODE,3 T
O ,,noofcols%
3120 noofcols%+=1:IF noofcols%=64 noofc
ols%=256
3130 ENDPROC
```

Listing 21 – Reflection

```
10 REM >Reflection (Info21)
20 REM David Llewellyn-Jones
30 REM for 32-bit machines
40 REM (c) BAU December 1992
50 :
60 MODE 13
70 OFF
80 *POINTER 1
90 PROCcolours
100 GCOL 31
110 FOR n=1 TO 5Ø
120 PLOT 69,RND(128Ø),RND(1Ø24)
130 NEXT
140 GCOL Ø TINT 64
150 LINE Ø,512,128Ø,512
160 GCOL 31 TINT 255
170 CIRCLE FILL 138,58Ø,7Ø
180 DIM code2% 15Ø
190 link=14:pc=15
200 x=Ø:y=1:point=2:colour=3:base=4:fu
ll=5
210 temp=6:rnd=7:add=8:rnd2=9:top=1Ø
220 FOR pass%=Ø TO 2 STEP 2
230 P%=code2%
240 [OPT pass%
250 .vdu      EQUD 148
260 EQUD -1
270
280 .startup  LDR base,vdu
290 MOV y,#145
300 MOV add,#32Ø
310 MOV rnd,#15
320 MOV rnd2,#1
330 ADD full,base,#8192Ø
340 ADD top,base,#4Ø96Ø
350 .loop     ADD rnd,rnd,rnd2
360 ADD rnd2,rnd2,#2
370 CMP rnd2,#7
380 SUBGT rnd2,rnd2,#7
390 CMP rnd,#17
400 SUBGT rnd,rnd,#17
410 ADD x,x,#13
420 CMP x,#32Ø
430 ADD temp,add,#1
440 SUBGT x,x,temp
450 SUBGT y,y,#1
460 ADD point,base,y,LSL#8
470 ADD point,point,y,LSL#6
480 LDRB colour,[point,x]
490 MUL temp,rnd,add
500 SUB point,full,point
510 ADD point,base,point
520 ADD point,point,temp
530 ADD temp,point,x
540 CMP full,temp
550 BLE skip
560 CMP top,temp
570 BGT loop
580 CMP colour,#Ø
590 MOVEQ colour,#2
600 STRB colour,[point,x]
610 .skip     CMP y,#Ø
620 BGT loop
630 MOV pc,link
640 ]
650 NEXT pass%
660 SYS "OS_ReadVduVariables",vdu,vdu
670 MOUSE a%,b%,c%
680 g%=31
690 t%=255
700 r=FALSE
710 REPEAT
720 FOR A%=Ø TO 2559
730 WAIT
740 CALL startup
750 MOUSE x%,y%,z%
760 WAIT
770 IF z% PROCmoused
780 c%=z%
790 NEXT
800 UNTILFALSE
810 END
820 :
830 DEF PROCmoused
840 IF c%<>z% a%=x%:b%=y%
850 IF y%>1Ø16 THEN
860 IF z%=2 g%=(x%/4) DIV 4:t%=(x%/4)
MOD 4*64:GCOL g% TINT t%:r=FALSE
870 IF z%=2 AND x%>12ØØ r=TRUE
880 i%=INKEY(Ø) AND &DF
890 IF i%=82 PROCcolours
900 IF i%=83 THEN *SCREENSAVE"Water1"
910 ELSE
920 IF z%=4 AND NOT r MOVE a%,b%:MOVE
x%,y%:PLOT &71,Ø,12
930 IF z%=4 AND r GCOL RND(64) TINT RN
D(256):MOVE a%,b%:MOVE x%,y%:PLOT &71,Ø,
2Ø
940 IF z%=1 GCOL Ø TINT Ø:MOVE a%,b%:M
OVE x%,y%:PLOT &71,Ø,36:GCOL g% TINT t%
950 IF z%=2 LINE a%,b%,x%,y%
960 ENDIF
970 a%=x%
980 b%=y%
990 ENDPROC
1000 :
1010 DEF PROCcolours
1020 FOR n=1 TO 128Ø STEP4
1030 GCOL (n/4) DIV 4 TINT (n/4) MOD 4*
64
1040 RECTANGLE FILL n,1Ø16,4,8
1050 NEXT
1060 ENDPROC
```

Listing 22 – Explodes

```
10 REM >Explodes (Info22)
20 :
30 MODEØ:OFF:N=28:DIMX(N),Y(N),F(N),G
(N),A(N):X()=64Ø:Y()=99:FORP=1TON:F(P)=R
ND(16Ø)/1Ø-8:G(P)=RND(5Ø):A(P)=RND(99):N
EXT:REPEATCLS:FORP=1TON:A(P)+=1:G(P)-=1:
G(P)=G(P)/(1+(Y(P)<Ø)*2.4):X(P)+=F(P):Y(
P)+=G(P):CIRCLEFILLX(P),Y(P),15+SINA(P)*
6:NEXT:WAIT:UNTILØ
```

Listing 23 – TheQuest

```
10 REM >TheQuest (Info23)
20 :
30 MODEØ:OFF:O=64Ø:X=O:Y=O:F=Ø:A=Ø:I=
Ø:G=9:REPEATMOUSEE,W,Z:I+=.4:G-=1:X+=F:Y
+=G:A+=E-O:CLS:ELLIPSEFILLX,Y,99+2Ø*SINI
,5Ø+2Ø*COSI,RADA:WAIT:F-=Z/2*COSRAD(A-9Ø
):G+=Z/2*COSRADA:C=X>128ØORX<Ø:F=F/(1+C*
2.4):J=Y<Ø:G=G/(1+J*2.6):O=E:X-=C*F*2:Y-
=J*G*2.5:UNTILØ
```

Listing 24 – Splat

```
10 REM >Splat (Info24)
20 :
30 MODE15:OFF:MOUSEON:DIMb(8),a(8),s(
8):REPEATREPEATMOUSEx,y,z:UNTILz:GCOLRND
(64):s=3+RND(4):FORn=1TOs:a(n)=n*36Ø/s+R
ND(3Ø):b(n)=18Ø/s:s(n)=-RND(1)*5-2:NEXT:
FORd=9TO3ØØSTEP22:FORn=1TOs:CIRCLEFILLx+
d*COSRADa(n),y+d*SINRADa(n),b(n):b(n)+=s
(n):s(n)+=.3:NEXT,:UNTILØ
```

Listing 25 – Goo

```
10 REM >Goo (Info25)
20 :
30 MODE12:OFF:FORy=999TO-28ØSTEP-24:c
=c+1:VDU18;c,26:FORx=ØTO128ØSTEP8:r=r+.Ø
3:o=r*COS(x*.Ø2):MOVEx,y+o:PLOT&71,Ø,28:
MOVEx,y+o:NEXT,:VDU275;24;255|:REPEATFOR
x=ØTO15:WAIT:WAIT:FORy=ØTO15:COLOURx+y,y
*16,255,y*16:NEXT,:UNTILØ
```

Listing 26 – DarkSide

```
10 REM >DarkSide (Info26)
20 :
30 MODE2:VDU23;82Ø2;Ø;Ø;Ø;:D$="132645
Ø":C=Ø:FORY=565TO535STEP-5:C=C+1:GCOLØ,V
AL(MID$(D$,C,1)):MOVE7ØØ,Y:MOVE128Ø,Y*4-
176Ø:PLOT85,128Ø,Y*4-18ØØ:NEXT:GCOLØ,6:M
OVE4ØØ,4ØØ:PLOT21,6ØØ,7ØØ:PLOT5,8ØØ,4ØØ:
PLOT5,4ØØ,4ØØ:GCOLØ,7:MOVEØ,4ØØ:PLOT5,5Ø
Ø,56Ø:PLOT21,7ØØ,565:MOVE5ØØ,56Ø:PLOT21,
7ØØ,54Ø:IFGET
```

Listing 27 – Col256x12

```
10 REM >Col256x12 (Info27)
20 REM by Bryan Creer
30 REM for 32-bit machines
40 REM (c) BAU December 1992
50 :
60 MODE 13
70 OFF
80 FOR m%=Ø TO 5
90 READ r%,g%,b%
100 PROCshades(r%,g%,b%,Ø,m%*172,8Ø,17
2)
110 NEXT
120 g$=GET$
130 CLS
140 ON
150 END
160 :
170 DEF PROCshades(r%,g%,b%,xb%,yb%,xs
%,ys%)
180 n%=Ø
190 WHILE r%<4 AND g%<4 AND b%<4
200 FOR t%=Ø TO 3
210 GCOL r%+4*g%+16*b% TINT t%*64
220 RECTANGLE FILL xb%+(n%*4+t%)*xs%,y
b%,xs%-4,ys%-4
230 NEXT
240 r%+=1
250 g%+=1
260 b%+=1
270 n%+=1
280 ENDWHILE
290 ENDPROC
300 :
310 DATA 1,Ø,Ø
320 DATA 1,1,Ø
330 DATA Ø,1,Ø
340 DATA Ø,1,1
350 DATA Ø,Ø,1
360 DATA 1,Ø,1
```

Listing 28 – Col256x8

```
10 REM >Col256x8 (Info28)
20 REM by Bryan Creer
30 REM for 32-bit machines
40 REM (c) BAU December 1992
50 :
60 MODE 13
70 OFF
80 ORIGIN 4Ø,112
90 FOR m%=Ø TO 11
100 READ r%,g%,b%
110 PROCshades(r%,g%,b%)
120 NEXT
130 g$=GET$
140 CLS
150 ON
160 END
170 :
180 DEF PROCshades(r%,g%,b%)
190 n%=Ø
200 WHILE r%<4 AND g%<4 AND b%<4
210 FOR t%=Ø TO 3
220 GCOL r%+4*g%+16*b% TINT t%*64
230 RECTANGLE FILL m%*1ØØ,(n%*4+t%)*1Ø
Ø,96,96
240 NEXT
250 r%+=1
260 g%+=1
270 b%+=1
280 n%+=1
290 ENDWHILE
300 ENDPROC
310 :
320 DATA 2,Ø,Ø
330 DATA 2,1,Ø
340 DATA 2,2,Ø
350 DATA 1,2,Ø
360 DATA Ø,2,Ø
370 DATA Ø,2,1
380 DATA Ø,2,2
390 DATA Ø,1,2
400 DATA Ø,Ø,2
410 DATA 1,Ø,2
420 DATA 2,Ø,2
430 DATA 2,Ø,1
```

ROUND THE BEND

Listing 1 – DrawItalic

```
10 REM >DrawItalic (Draw1)
20 REM by Michael Attenborough
30 REM for 32-bit machines
40 REM (c) BAU Dec 1992
50 :
60 PROCinit
70 ON ERROR GOTO 87Ø
80 MODE Ø
90 PRINT ''"  Draw file italiciser"''
100
110 REPEAT
120  PRINT'"Enter input filename"
130  INPUT":"drawin$
140  i%=OPENIN(drawin$)
150  IF i%=Ø THEN PRINT"Input file not
 found."
160 UNTIL i%
170 REPEAT
180  PRINT'"Enter output filename"
190  INPUT":"drawout$
200  IF drawout$=drawin$ THEN PRINT "F
ilename must be different":drawout$=""
210  c%=OPENOUT(drawout$)
220  IF c%=Ø THEN PRINT"Can't open out
put file"
230 UNTIL c%
240 PRINT'"Enter pen angle in degrees
anticlockwise from horizontal"
250 INPUT":"pen_ang
260 CPA=COSRAD(pen_ang)
270 SPA=SINRAD(pen_ang)
280 PRINT'"Do you want the nib width t
o be taken from the line width in the so
urce file?"
290 samewid%=FNyn
300 IF samewid%=FALSE THEN
310  PRINT
320  W=ABS(FNdim("nib width in inches,
 points, centimetres or millimetres, suf
fixing number with in, pt, cm or mm resp
ectively."))
330  IF W=Ø THEN samewid%=TRUE
340 ENDIF
350 REPEAT
360  PRINT'"Please enter nib thickness
 as a fraction of nib width, between Ø a
nd Ø.5"
370  INPUT"inclusive:"THF
380 UNTIL THF>=Ø AND THF<=.5
390 IF samewid%=FALSE THEN W2=W*THF:W=
W-W2
400 pstyle%=&2Ø1ØØØ42
410 IF THF>.1 THEN
420  PRINT"Do you want a round-ended n
ib rather than square?"
430  IF FNyn THEN pstyle%=&2Ø1ØØØ55
440 ENDIF
450
460 CLS:OFF
470 SYS "Hourglass_On"
480 T%=FNword
490 IF T%<>&77617244 THEN ERROR 1234,"
Not a Draw file."
500 ext%=EXT#i%
510 PROCputw(T%)
520 verhi%=FNword:verlo%=FNword
530 PROCputw(verhi%):PROCputw(verlo%)
540 PROCcopy(12)
550 pminx%=FNword:pminy%=FNword
560 pmaxx%=FNword:pmaxy%=FNword
570 XSC=128Ø/(pmaxx%-pminx%)
580 YSC=1Ø24/(pmaxy%-pminy%)
590 IF XSC<YSC THEN SC=XSC*.9 ELSE SC=
YSC*.9
600 ORIGIN 5Ø-pminx%*SC,64-pminy%*SC
610
620 lev%=-1
630 PROChead_here(TRUE)
640 REPEAT
650  PROCdo_object
660 UNTIL EOF#i%
670 PROChead_now
680
690 CLOSE#i%:i%=Ø
700 CLOSE#c%:c%=Ø
710 OSCLI("SetType "+drawout$+" AFF")
720 SYS "Hourglass_Off"
730 ON
740 END
750 :
760 DEF PROCinit
770 maxlev%=32
780 DIM start%(maxlev%),box%(maxlev%)
790 DIM l%(maxlev%),b%(maxlev%),r%(max
lev%),t%(maxlev%)
800 MP%=15Ø:REM max. points in path
810 ACC=1:S=1/32
820 DIM X(MP%),Y(MP%),XC1(MP%),YC1(MP%
),XC2(MP%),YC2(MP%),line%(MP%)
830 big%=&7FFFFFFF
840 i%=Ø:c%=Ø
850 ENDPROC
860 :
870 REM error trap
880 ON ERROR OFF
890 REPORT
900 IF ERR=1234 THEN PRINT ELSE PRINT;
" at line ";ERL
910 SYS "Hourglass_Smash"
920 IF c%<>Ø THEN CLOSE#c%
930 IF i%<>Ø THEN CLOSE#i%
940 ON
950 END
960 :
970 DEF PROCdo_object
980 LOCAL end%
990 SYS "Hourglass_Percentage",1ØØ*PTR
#i%/ext%
1000 ot%=FNword:end%=PTR#i%+FNword-4
1010 CASE (ot% AND &FF) OF
1020  WHEN 2:PROCdo_path
1030  WHEN 6:REM group
1040   PROCputw(ot%):PROChead_here(TRUE
)
1050   l%=FNword:b%=FNword
1060   r%=FNword:t%=FNword
1070   PROCbbox(l%,b%)
1080   PROCbbox(r%,t%)
1090   PROCcopy(12)
1100   REPEAT
1110    PROCdo_object
1120   UNTIL PTR#i%>=end%
1130   PROChead_now
1140  OTHERWISE:PROCputw(ot%):PROChead_
here(FALSE)
1150   REPEAT
1160    PROCputw(FNword)
1170   UNTIL PTR#i%>=end%
1180   PROChead_now
1190 ENDCASE
1200 ENDPROC
1210 :
1220 DEF PROCdo_path
1230 LOCAL pathstt%
1240 pathstt%=PTR#i%
1250 PTR#i%=pathstt%+16
```

```
 1260 fcol%=FNword
 1270 col%=FNword
 1280 width%=FNword
 1290 style%=FNword
 1300 IF samewid% THEN W2=width%*THF:W=w
idth%-W2
 1310 IF W=0 THEN
 1320  PTR#i%=pathstt%-8
 1330  REPEAT
 1340   PROCputw(FNword)
 1350  UNTIL PTR#i%>=end%
 1360 ENDIF
 1370 IF W=0 THEN ENDPROC
 1380 PROCputw(6):PROChead_here(TRUE)
 1390 PROCputw(&6C6D7449):PROCputw(&2073
6369):PROCputw(&20202020)
 1400 IF fcol%<>-1 THEN
 1410  PROCputw(2):PROChead_here(FALSE)
 1420  PROCputw(l%):PROCputw(b%)
 1430  PROCputw(r%):PROCputw(t%)
 1440  PROCputw(fcol%):PROCputw(-1)
 1450  PROCputw(0):PROCputw(style%)
 1460  REPEAT
 1470   PROCputw(FNword)
 1480  UNTIL PTR#i%>=end%
 1490  PROChead_now
 1500 ENDIF
 1510 PTR#i%=pathstt%+32
 1520 IF style% AND 128 THEN
 1530  T%=FNword:T%=FNword
 1540  PTR#i%=PTR#i%+T%*4
 1550 ENDIF
 1560 T%=FNword
 1570 X(0)=FNword:Y(0)=FNword
 1580 pts%=0
 1590 REPEAT
 1600  act%=FNword
 1610  IF act%=5 THEN act%=FNword
 1620  pts%+=1
 1630  CASE act% OF
 1640   WHEN 0,2:pts%-=1
 1650    IF pts%>0 THEN PROCdrawit
 1660    IF act%=2 THEN X(0)=FNword:Y(0)
=FNword:pts%=0
 1670   WHEN 6:line%(pts%-1)=FALSE
 1680    XC1(pts%-1)=FNword:YC1(pts%-1)=
FNword
 1690    XC2(pts%)=FNword:YC2(pts%)=FNwo
rd
 1700    X(pts%)=FNword:Y(pts%)=FNword
 1710   WHEN 8:line%(pts%-1)=TRUE
 1720    X(pts%)=FNword:Y(pts%)=FNword
 1730   OTHERWISE ERROR 1234,"Unknown pa
th action ("+STR$act%+") at &"+STR$~PTR#
i%
 1740  ENDCASE
 1750 UNTIL act%=0
 1760 PROChead_now
 1770 ENDPROC
 1780 :
 1790 DEF PROCdrawit
 1800 MOVE FNX(0)*SC,FNY(0)*SC
 1810 FOR P=S TO pts% STEP S
 1820  DRAW FNX(P)*SC,FNY(P)*SC
 1830 NEXT
 1840
 1850 FOR N%=0 TO pts%
 1860  X=X(N%):Y=Y(N%)
 1870  X(N%)=X*CPA+Y*SPA:Y(N%)=Y*CPA-X*S
PA
 1880  X=XC1(N%):Y=YC1(N%)
 1890  XC1(N%)=X*CPA+Y*SPA:YC1(N%)=Y*CPA
-X*SPA
 1900  X=XC2(N%):Y=YC2(N%)
 1910  XC2(N%)=X*CPA+Y*SPA:YC2(N%)=Y*CPA
-X*SPA
 1920 NEXT
 1930
 1940 REPEAT
 1950 G%=SGN(FNDYDP(0))
 1960 PE=0
 1970 REPEAT
 1980 REPEAT
 1990  OG%=G%
 2000  PE+=S
 2010  G%=SGN(FNDYDP(PE))
 2020  IF G%=0 THEN G%=OG%
 2030 UNTIL (OG%<>0 AND G%<>OG%) OR PE=p
ts%
 2040 IF PE<>INT(PE) THEN PE=FNfind0g(PE
-S,PE,G%)
 2050 IF SQR((FNX(PE)-FNX(INT(PE)))^2+(F
NY(PE)-FNY(INT(PE)))^2)<=ACC THEN PE=INT
(PE)
 2060 IF PE=0 THEN PE+=S
 2070 UNTIL PE<>0
 2080 PROCputw(2):PROChead_here(TRUE)
 2090 PROCputw(col%):PROCputw(col%)
 2100 PROCputw(W2):PROCputw(pstyle%)
 2110 PROCputw(2)
 2120 PROCputxy(X(0),Y(0))
 2130 IF INT(PE)>0 THEN
 2140 FOR N%=1 TO INT(PE)
 2150  IF line%(N%-1) THEN
 2160   PROCputw(8)
 2170   PROCputxy(X(N%),Y(N%))
 2180  ELSE
 2190   PROCputw(6)
 2200   PROCputxy(XC1(N%-1),YC1(N%-1))
 2210   PROCputxy(XC2(N%),YC2(N%))
 2220   PROCputxy(X(N%),Y(N%))
 2230  ENDIF
 2240 NEXT
 2250 ENDIF
 2260 IF PE<>INT(PE) THEN
 2270  N%=INT(PE):PF=PE-N%
 2280  PROCputw(6)
 2290  PROCputxy(X(N%)+(XC1(N%)-X(N%))*P
F,Y(N%)+(YC1(N%)-Y(N%))*PF)
 2300  PROCputxy(FNX(PE)-FNDXDP(PE)*PF*.
32,FNY(PE))
 2310  PROCputxy(FNX(PE),FNY(PE))
 2320 ENDIF
 2330 PROCputw(8)
 2340 PROCputxy(FNX(PE)+W,FNY(PE))
 2350 IF PE<>INT(PE) THEN
 2360  PROCputw(6)
 2370  PROCputxy(W+FNX(PE)-FNDXDP(PE)*PF
*.32,FNY(PE))
 2380  PROCputxy(W+X(N%)+(XC1(N%)-X(N%))
*PF,Y(N%)+(YC1(N%)-Y(N%))*PF)
 2390  PROCputxy(W+X(N%),Y(N%))
 2400 ENDIF
 2410 IF INT(PE)>0 THEN
 2420 FOR N%=INT(PE)-1 TO 0 STEP -1
 2430  IF line%(N%) THEN
 2440   PROCputw(8)
 2450   PROCputxy(X(N%)+W,Y(N%))
 2460  ELSE
 2470   PROCputw(6)
 2480   PROCputxy(XC2(N%+1)+W,YC2(N%+1))
 2490   PROCputxy(XC1(N%)+W,YC1(N%))
 2500   PROCputxy(X(N%)+W,Y(N%))
 2510  ENDIF
 2520 NEXT
 2530 ENDIF
 2540 PROCputw(8)
 2550 PROCputxy(X(0),Y(0))
 2560 PROCputw(5)
 2570 PROCputw(0)
 2580 PROChead_now
 2590 D%=INT(PE)
 2600 pts%-=D%:PE-=D%
 2610 FOR N%=0 TO pts%+1
 2620  X(N%)=X(N%+D%):Y(N%)=Y(N%+D%)
 2630  XC1(N%)=XC1(N%+D%):YC1(N%)=YC1(N%
+D%)
 2640  XC2(N%)=XC2(N%+D%):YC2(N%)=YC2(N%
+D%)
 2650  line%(N%)=line%(N%+D%)
 2660 NEXT
 2670 IF PE<>INT(PE) THEN
 2680  NXS=FNX(PE):NYS=FNY(PE)
 2690  NXC1=NXS+FNDXDP(PE)*(1-PE)*.32
 2700  NYC1=NYS
 2710  XC2(1)=X(1)+(XC2(1)-X(1))*(1-PE)
 2720  YC2(1)=Y(1)+(YC2(1)-Y(1))*(1-PE)
 2730  X(0)=NXS:Y(0)=NYS
 2740  XC1(0)=NXC1:YC1(0)=NYC1
 2750 ENDIF
 2760 UNTIL pts%=0
 2770 ENDPROC
 2780 :
 2790 DEF FNfind0g(PL,PH,F)
 2800 LOCAL N%,YS,YC1,YC2,YE,P,GL,GH,G
 2810 N%=INT(PL)
 2820 IF line%(N%) THEN
 2830  IF SGN(Y(N%+1)-Y(N%))=F THEN P=N%
 ELSE P=N%+1
 2840 ENDIF
 2850 IF line%(N%) THEN =P
 2860 GL=FNDYDP(PL):GH=FNDYDP(PH)
 2870 WHILE ABS(FNX(PH)-FNX(PL))>ACC
 2880  P=(PL+PH)/2
 2890  G=FNDYDP(P)*F
 2900  IF G<=0 THEN PL=P
 2910  IF G>=0 THEN PH=P
 2920 ENDWHILE
 2930 =(PL+PH)/2
 2940 :
 2950 DEF FNDXDP(P)
 2960 LOCAL N%,Q
 2970 N%=INT(P)
 2980 IF line%(N%) THEN =X(N%+1)-X(N%)
 2990 P-=N%:Q=1-P
 3000 =-3*Q*Q*X(N%)+3*Q*(Q-2*P)*XC1(N%)+
3*P*(2*Q-P)*XC2(N%+1)+3*P*P*X(N%+1)
 3010 :
 3020 DEF FNDYDP(P)
 3030 LOCAL N%,Q
 3040 N%=INT(P)
 3050 IF line%(N%) THEN =Y(N%+1)-Y(N%)
 3060 P-=N%:Q=1-P
 3070 =-3*Q*Q*Y(N%)+3*Q*(Q-2*P)*YC1(N%)+
3*P*(2*Q-P)*YC2(N%+1)+3*P*P*Y(N%+1)
 3080 :
 3090 DEF FNX(P)
 3100 LOCAL N%,Q
 3110 N%=INT(P)
 3120 IF N%<0 THEN N%=0
 3130 IF N%>pts%-1 THEN N%=pts%-1
 3140 P=P-N%:Q=1-P
 3150 IF line%(N%) THEN =Q*X(N%)+P*X(N%+
1)
 3160 =X(N%)*Q^3+XC1(N%)*3*P*Q*Q+XC2(N%+
1)*3*P*P*Q+X(N%+1)*P^3
 3170 :
 3180 DEF FNY(P)
 3190 LOCAL N%,Q
 3200 N%=INT(P)
 3210 IF N%<0 THEN N%=0
 3220 IF N%>pts%-1 THEN N%=pts%-1
 3230 P=P-N%:Q=1-P
 3240 IF line%(N%) THEN =Q*Y(N%)+P*Y(N%+
1)
 3250 =Y(N%)*Q^3+YC1(N%)*3*P*Q*Q+YC2(N%+
1)*3*P*P*Q+Y(N%+1)*P^3
 3260 :
 3270 DEF FNword
 3280 =BGET#i% OR (&100*BGET#i%) OR (&10
000*BGET#i%) OR ((BGET#i%)<<24)
 3290 :
 3300 DEF FNdim(Q$)
 3310 LOCAL V%
 3320 PRINT'"Enter ";Q$
 3330 REPEAT
 3340  INPUT":"Q$
 3350  IF Q$="" OR Q$="0" THEN VDU 11:PR
INT":0":Q$="IN"
 3360  CASE RIGHT$(Q$,2) OF
 3370   WHEN "in","IN":V%=VAL(Q$)*&B400
 3380   WHEN "pt","PT":V%=VAL(Q$)*640
 3390   WHEN "cm","CM":V%=VAL(Q$)*18140
 3400   WHEN "mm","MM":V%=VAL(Q$)*1814
 3410   OTHERWISE Q$="":PRINT"Units not
known/not found.  Please suffix measurem
ent with in/pt/cm/mm."
 3420  ENDCASE
 3430 UNTIL Q$<>""
 3440 =V%
 3450 :
 3460 REMDEF Procedures to create a Draw
 file
 3470 :
 3480 DEF PROCputxy(X,Y)
 3490 LOCAL x%,y%
 3500 x%=X*CPA-Y*SPA
 3510 y%=X*SPA+Y*CPA
 3520 PROCputw(x%):PROCputw(y%)
 3530 PROCbbox(x%,y%)
 3540 ENDPROC
 3550 :
 3560 DEF PROCcopy(N%)
 3570 LOCAL I%
 3580 FOR I%=1 TO N%
 3590  BPUT#c%,BGET#i%
 3600 NEXT
 3610 ENDPROC
 3620 :
 3630 DEF PROCputw(A%)
 3640 BPUT#c%,A% AND &FF
 3650 BPUT#c%,(A%>>>8) AND &FF
 3660 BPUT#c%,(A%>>>16) AND &FF
 3670 BPUT#c%,(A%>>>24) AND &FF
 3680 ENDPROC
 3690 :
 3700 DEF PROChead_here(box%)
 3710 IF lev%=maxlev% THEN ERROR 1234,"T
oo many nested groups.  Edit program to
increase limit."
 3720 lev%+=1
 3730 box%(lev%)=box%
 3740 start%(lev%)=PTR#c%
 3750 IF lev%>0 THEN PROCputw(0)
 3760 IF box% THEN
 3770  PROCputw(0):PROCputw(0)
 3780  PROCputw(0):PROCputw(0)
 3790 ENDIF
 3800 l%(lev%)=big%:b%(lev%)=big%
 3810 r%(lev%)=-big%:t%(lev%)=-big%
 3820 ENDPROC
 3830 :
 3840 DEF PROChead_now
 3850 LOCAL end%
 3860 end%=PTR#c%
 3870 PTR#c%=start%(lev%)
 3880 IF lev%>0 THEN PROCputw(end%-start
%(lev%)+4)
 3890 IF box%(lev%) THEN
 3900  PROCputw(l%(lev%)):PROCputw(b%(le
v%))
 3910  PROCputw(r%(lev%)+1):PROCputw(t%(
lev%)+1)
 3920 ENDIF
 3930 IF lev%>0 THEN
 3940  lev%-=1
 3950  IF l%(lev%+1)<l%(lev%) THEN l%(le
v%)=l%(lev%+1)
 3960  IF b%(lev%+1)<b%(lev%) THEN b%(le
v%)=b%(lev%+1)
 3970  IF r%(lev%+1)>r%(lev%) THEN r%(le
v%)=r%(lev%+1)
 3980  IF t%(lev%+1)>t%(lev%) THEN t%(le
v%)=t%(lev%+1)
 3990 ENDIF
 4000 PTR#c%=end%
 4010 ENDPROC
 4020 :
 4030 DEF PROCbbox(x%,y%)
 4040 IF x%<l%(lev%) THEN l%(lev%)=x%
 4050 IF y%<b%(lev%) THEN b%(lev%)=y%
 4060 IF x%>r%(lev%) THEN r%(lev%)=x%
 4070 IF y%>t%(lev%) THEN t%(lev%)=y%
 4080 ENDPROC
 4090 :
 4100 DEF FNyn
 4110 LOCAL G%
 4120 PRINT"Press Y/N:";
 4130 REPEAT:G%=GET:IF G%<96 G%+=32
 4140 UNTIL G%=121 OR G%=110
 4150 VDU G%,13,10
 4160 =(G%=121)
```

Listing 2 – MakeDraw

```
   10 REM >MakeDraw (Draw2)
   20 REM by Michael Attenborough
   30 REM for 32-bit machines
   40 REM (c) BAU Dec 1992
   50 :
   60 MODE 8
   70 PROCinit
   80 ON ERROR GOTO 670
   90
  100 PROCdrawfile_start("DrawTest")
  110 PROCfonttable
  120
  130 PROCgroup_start
  140 X%=2*inch:Y%=11*inch
  150 FOR A%=0 TO 2
  160  IF A%=1 THEN colour%=white% ELSE
colour%=black%
  170  PROCtext(X%+point*A%,Y%,"Text pri
nted 3 times for shadow effect",16*point
,20*point,2,colour%,white%)
  180 NEXT
  190 PROCgroup_end
  200
  210 PROCgroup_start
  220 FOR A%=1 TO 8
  230  colour%=FNcol(A%*31,(9-A%)*31,0)
  240  PROCellipse(4*inch,8*inch,A%*inch
/4,(9-A%)*inch/4,0,black%,colour%)
  250 NEXT
  260 PROCgroup_end
  270
  280 PROCsprite(1*inch,5*inch,inch,inch
,":Appl.$.!Draw.!Sprites","!Draw")
  290 PROCsprite(6*inch,5*inch,inch,inch
,":Appl.$.!Draw.!Sprites","file_AFF")
  300
  310 PROCgroup_start
  320 xc%=4*inch:yc%=3*inch
  330 PROCpath_start(xc%,yc%+2*inch,0,bl
ack%,&CCCCCC00)
  340 FOR A%=3 TO 357 STEP 3
  350  R=2*inch+0.2*inch*(A% AND 1)
  360  PROCpath_draw(xc%+R*SINRAD(A%),yc
%+R*COSRAD(A%))
  370 NEXT
  380 PROCpath_close
  390 PROCpath_end
  400 R=1*inch:R2=0.1*inch
  410 FOR A%=60 TO 360 STEP 60
  420  PROCellipse(xc%+R*SINRAD(A%),yc%+
R*COSRAD(A%),R2,R2,0,black%,white%)
  430 NEXT
  440 PROCellipse(xc%,yc%,R2,R2,0,black%
,white%)
  450 PROCgroup_end
  460
  470 PROCdrawfile_end
  480 END
  490 :
  500 DEF PROCinit
  510 maxlev%=32
  520 DIM start%(maxlev%),box%(maxlev%)
  530 DIM l%(maxlev%),b%(maxlev%),r%(max
lev%),t%(maxlev%)
  540 DIM buf% 256
  550 big%=&7FFFFFFF
  560 EF=0.552256944
  570 i%=0:c%=0
  580 inch=&B400
  590 point=640
  600 cm=18140
  610 black%=0
  620 white%=&FFFFFF00
  630 none%=-1
  640 ENDPROC
  650 :
  660 REM error trap
  670 ON ERROR OFF
  680 REPORT
  690 IF ERR=1234 THEN PRINT ELSE PRINT;
" at line ";ERL
  700 IF c%<>0 THEN CLOSE#c%
  710 IF i%<>0 THEN CLOSE#i%
  720 ON
  730 END
  740 :
  750 DEF PROCdrawfile_start(D$)
  760 c%=OPENOUT(D$)
  770 IF c%=0 THEN ERROR 1234,"Can't ope
n output file"
  780 drawfile$=D$
  790 PROCputw(&77617244):PROCputw(201):
PROCputw(0)
  800 PROCputs12("MakeDraw")
  810 lev%=-1
  820 PROChead_here(TRUE)
  830 ENDPROC
  840 :
  850 DEF PROCdrawfile_end
  860 IF lev%>0 THEN PRINT"Warning: Draw
 file closed with object(s) unfinished"
  870 PROChead_now
  880 CLOSE#c%:c%=0
  890 OSCLI("SetType "+drawfile$+" AFF")
  900 ENDPROC
  910 :
  920 DEF PROCpath_start(x%,y%,width%,lc
ol%,fcol%)
  930 PROCputw(2)
  940 PROChead_here(TRUE)
  950 PROCputw(fcol%):REM fill
  960 PROCputw(lcol%):REM colour
  970 PROCputw(width%):REM width
  980 PROCputw(0):REM path style
  990 PROCpath_move(x%,y%)
 1000 ENDPROC
 1010 :
 1020 DEF PROCpath_move(x%,y%)
 1030 PROCputw(2)
 1040 PROCputxy(x%,y%)
 1050 ENDPROC
 1060 :
 1070 DEF PROCpath_draw(x%,y%)
 1080 PROCputw(8)
 1090 PROCputxy(x%,y%)
```

```
 1100 ENDPROC
 1110 :
 1120 DEF PROCpath_bezier(xc1%,yc1%,xc2%
,yc2%,x%,y%)
 1130 PROCputw(6)
 1140 PROCputxy(xc1%,yc1%)
 1150 PROCputxy(xc2%,yc2%)
 1160 PROCputxy(x%,y%)
 1170 ENDPROC
 1180 :
 1190 DEF PROCpath_close
 1200 PROCputw(5)
 1210 ENDPROC
 1220 :
 1230 DEF PROCpath_end
 1240 PROCputw(Ø)
 1250 PROChead_now
 1260 ENDPROC
 1270 :
 1280 DEF PROCellipse(x%,y%,w%,h%,width%
,lcol%,fcol%)
 1290 PROCpath_start(x%,y%-h%,width%,lco
l%,fcol%)
 1300 PROCpath_bezier(x%+w%*EF,y%-h%,x%+
w%,y%-h%*EF,x%+w%,y%)
 1310 PROCpath_bezier(x%+w%,y%+h%*EF,x%+
w%*EF,y%+h%,x%,y%+h%)
 1320 PROCpath_bezier(x%-w%*EF,y%+h%,x%-
w%,y%+h%*EF,x%-w%,y%)
 1330 PROCpath_bezier(x%-w%,y%-h%*EF,x%-
w%*EF,y%-h%,x%,y%-h%)
 1340 PROCpath_close
 1350 PROCpath_end
 1360 ENDPROC
 1370 :
 1380 DEF PROCgroup_start
 1390 REM groups cannot be nested in thi
s version
 1400 PROCputw(6)
 1410 PROChead_here(TRUE)
 1420 PROCputs12("group")
 1430 ENDPROC
 1440 :
 1450 DEF PROCgroup_end
 1460 PROChead_now
 1470 ENDPROC
 1480 :
 1490 DEF PROCfonttable
 1500 LOCAL font%,font$
 1510 RESTORE 1640
 1520 READ font%,font$
 1530 IF font$="END" THEN ENDPROC
 1540 PROCputw(Ø)
 1550 PROChead_here(FALSE)
 1560 REPEAT
 1570  PROCputs(CHR$(font%)+font$)
 1580  READ font%,font$
 1590 UNTIL font$="END"
 1600 PROCalign
 1610 PROChead_now
 1620 ENDPROC
 1630 :
 1640 REM font table data
 1650 DATA 1,"Homerton.Medium"
 1660 DATA 2,"Trinity.Medium"
 1670 DATA Ø,"END"
 1680 :
 1690 DEF PROCsprite(x%,y%,w%,h%,F$,S$)
 1700 IF LEN(S$)>12 THEN PRINT"Bad sprit
e name ";S$:ENDPROC
 1710 LOCAL i%,N%,len%
 1720 i%=OPENIN(F$)
 1730 IF i%=Ø THEN PRINT"Sprite file ";F
$;" not found":ENDPROC
 1740 $buf%=S$+STRING$(12,CHR$Ø)
 1750 FOR N%=Ø TO 11
 1760  IF buf%?N%>64 AND buf%?N%<91 THEN
 buf%?N%+=32
 1770 NEXT
 1780 N%=FNword:IF N%=Ø THEN PRINT"No sp
rites in file ";F$:ENDPROC
 1790 PTR#i%=FNword-4
 1800 REPEAT
 1810  len%=FNword
 1820  IF FNword=!buf% AND FNword=buf%!4
 AND FNword=buf%!8 THEN N%=-1 ELSE N%-=1
 1830  IF N%>Ø THEN PTR#i%=PTR#i%+len%-1
6
 1840 UNTIL N%<1
 1850 IF N%=Ø THEN PRINT"Sprite ";S$;" n
ot found":ENDPROC
 1860 PROCputw(5)
 1870 PROChead_here(FALSE)
 1880 PROCputxy(x%,y%)
 1890 PROCputxy(x%+w%+1,y%+h%+1)
 1900 PROCputw(len%)
 1910 PROCputw(!buf%):PROCputw(buf%!4):P
ROCputw(buf%!8)
 1920 FOR N%=17 TO len%:BPUT#c%,BGET#i%:
NEXT
 1930 CLOSE#i%:i%=Ø
 1940 PROCalign
 1950 PROChead_now
 1960 ENDPROC
 1970 :
 1980 DEF PROCtext(x%,y%,text$,xsize%,ys
ize%,font%,col%,bcol%)
 1990 PROCputw(1)
 2000 PROChead_here(FALSE)
 2010 PROCputxy(x%,y%-ysize%*.5)
 2020 PROCputxy(x%+LEN(text$)*xsize%,y%+
ysize%)
 2030 PROCputw(col%)
 2040 PROCputw(bcol%)
 2050 PROCputw(font%)
 2060 PROCputw(xsize%):PROCputw(ysize%)
 2070 PROCputxy(x%,y%)
 2080 PROCputs(text$):PROCalign
 2090 PROChead_now
 2100 ENDPROC
 2110 :
 2120 DEF FNcol(R%,G%,B%)
 2130 =(R%<<8)+(G%<<16)+(B%<<24)
 2140 :
 2150 DEF PROCputw(A%)
 2160 BPUT#c%,A% AND &FF
 2170 BPUT#c%,(A%>>>8) AND &FF
 2180 BPUT#c%,(A%>>>16) AND &FF
 2190 BPUT#c%,(A%>>>24) AND &FF
 2200 ENDPROC
 2210 :
 2220 DEF PROCputs12(A$)
 2230 LOCAL A%
 2240 A$=A$+STRING$(12," ")
 2250 FOR A%=1 TO 12:BPUT#c%,ASC(MID$(A$
,A%,1)):NEXT
 2260 ENDPROC
 2270 :
 2280 DEF PROCputs(A$)
 2290 LOCAL A%
 2300 FOR A%=1 TO LEN(A$):BPUT#c%,ASC(MI
D$(A$,A%,1)):NEXT
 2310 BPUT#c%,Ø
 2320 ENDPROC
 2330 :
 2340 DEF PROChead_here(box%)
 2350 IF lev%=maxlev% THEN ERROR 1234,"T
oo many nested groups.  Edit program to
increase limit."
 2360 lev%+=1
 2370 box%(lev%)=box%
 2380 start%(lev%)=PTR#c%
 2390 IF lev%>Ø THEN PROCputw(Ø)
 2400 IF box% THEN
 2410  PROCputw(Ø):PROCputw(Ø)
 2420  PROCputw(Ø):PROCputw(Ø)
 2430 ENDIF
 2440 l%(lev%)=big%:b%(lev%)=big%
 2450 r%(lev%)=-big%:t%(lev%)=-big%
 2460 ENDPROC
 2470 :
 2480 DEF PROChead_now
 2490 LOCAL end%
 2500 IF lev%<Ø THEN PRINT"Warning: atte
mpt to end more objects than were starte
d":ENDPROC
 2510 end%=PTR#c%
 2520 PTR#c%=start%(lev%)
 2530 IF lev%>Ø THEN PROCputw(end%-start
%(lev%)+4)
 2540 IF box%(lev%) THEN
 2550  PROCputw(l%(lev%)):PROCputw(b%(le
v%))
 2560  PROCputw(r%(lev%)+1):PROCputw(t%(
lev%)+1)
 2570 ENDIF
 2580 IF lev%>Ø THEN
 2590  lev%-=1
 2600  IF l%(lev%+1)<l%(lev%) THEN l%(le
v%)=l%(lev%+1)
 2610  IF b%(lev%+1)<b%(lev%) THEN b%(le
v%)=b%(lev%+1)
 2620  IF r%(lev%+1)>r%(lev%) THEN r%(le
v%)=r%(lev%+1)
 2630  IF t%(lev%+1)>t%(lev%) THEN t%(le
v%)=t%(lev%+1)
 2640 ENDIF
 2650 PTR#c%=end%
 2660 ENDPROC
 2670 :
 2680 DEF PROCputxy(x%,y%)
 2690 PROCputw(x%):PROCputw(y%)
 2700 IF x%<l%(lev%) THEN l%(lev%)=x%
 2710 IF y%<b%(lev%) THEN b%(lev%)=y%
 2720 IF x%>r%(lev%) THEN r%(lev%)=x%
 2730 IF y%>t%(lev%) THEN t%(lev%)=y%
 2740 ENDPROC
 2750 :
 2760 DEF PROCalign
 2770 WHILE PTR#c% AND 3:BPUT#c%,Ø:ENDWH
ILE
 2780 ENDPROC
 2790 :
 2800 DEF FNword
 2810 =BGET#i% OR (&100*BGET#i%) OR (&10
000*BGET#i%) OR ((BGET#i%)<<24)
```

Listing 3 – Reshape

```
   10 REM >Reshape (Draw3)
   20 REM by Michael Attenborough
   30 REM for 32-bit machines
   40 REM (c) BAU Dec 1992
   50 :
   60 MODE 8
   70 PROCinit
   80 ON ERROR GOTO 830
   90
  100 PRINT ''"  Draw file reshaper"''
  110 REPEAT
  120  PRINT'"Enter filename of Draw fil
e to be reshaped"
  130  INPUT":"drawin$
  140  i%=OPENIN(drawin$)
  150  IF i%=Ø THEN PRINT"Input file not
 found."
  160 UNTIL i%
  170 CLOSE#i%:i%=Ø
  180 REPEAT
  190  PRINT'"Enter filename of Draw fil
e describing shape"
  200  INPUT":"drawin2$
  210  i%=OPENIN(drawin2$)
  220  IF i%=Ø THEN PRINT"Input file not
 found."
  230 UNTIL i%
  240 REPEAT
  250  PRINT'"Enter output filename"
  260  INPUT":"drawout$
  270  IF drawout$=drawin$ THEN PRINT "F
ilename must be different":drawout$=""
  280  c%=OPENOUT(drawout$)
  290  IF c%=Ø THEN PRINT"Can't open out
put file"
  300 UNTIL c%
  310 maxlen%=FNdim(" maximum length of
path segment (Ø=no limit)")
  320 PROCreadshape
  330
  340 i%=OPENIN(drawin$)
  350 SYS "Hourglass_On"
  360 T%=FNword
  370 IF T%<>&77617244 THEN ERROR 1234,"
Not a Draw file."
  380 ext%=EXT#i%
  390 PROCputw(T%)
  400 verhi%=FNword:verlo%=FNword
  410 PROCputw(verhi%):PROCputw(verlo%)
  420 PROCcopy(12):REM use same name for
 source of file
  430
  440 REM read bounding rectangle of fil
e
  450 minx%=FNword:miny%=FNword
  460 maxx%=FNword:maxy%=FNword
  470 XVS=1280/(maxx%-minx%)
  480 YVS=1024/(maxy%-miny%)
  490 IF XVS<YVS THEN VS=XVS*.9 ELSE VS=
YVS*.9
  500 wid%=maxx%-minx%
  510 hei%=maxy%-miny%
  520 SF=VS/SC
  530 maxlen%=maxlen%/SF
  540 CLS
  550 ORIGIN 5Ø-minx%*VS,64-miny%*VS
  560
  570 lev%=-1
  580 PROChead_here(TRUE)
  590 REPEAT
  600  PROCdo_object
  610 UNTIL EOF#i%
  620 PROChead_now
  630
  640 CLOSE#i%:i%=Ø
  650 CLOSE#c%:c%=Ø
  660 OSCLI("SetType "+drawout$+" AFF")
  670 SYS "Hourglass_Off"
  680 ON
  690 END
  700 :
  710 DEF PROCinit
  720 maxlev%=32
  730 DIM start%(maxlev%),box%(maxlev%)
  740 DIM l%(maxlev%),b%(maxlev%),r%(max
lev%),t%(maxlev%)
  750 MP%=1ØØ:REM max. points in shape d
efinition
  760 DIM X(MP%),Y(MP%),XC1(MP%),YC1(MP%
),XC2(MP%),YC2(MP%),line%(MP%),len(MP%,1
)
  770 s=1/32
  780 big%=&7FFFFFFF
  790 i%=Ø:c%=Ø
  800 ENDPROC
  810 :
  820 REM error trap
  830 ON ERROR OFF
  840 REPORT
  850 IF ERR=1234 THEN PRINT ELSE PRINT;
" at line ";ERL
  860 SYS "Hourglass_Smash"
  870 IF c%<>Ø THEN CLOSE#c%
  880 IF i%<>Ø THEN CLOSE#i%
  890 ON
  900 END
  910 :
  920 DEF PROCreadshape
  930 T%=FNword
  940 IF T%<>&77617244 THEN ERROR 1234,"
Shape file given is not a Draw file."
  960 verhi%=FNword:verlo%=FNword
  980 PROCignore(12)
  990 pminx%=FNword:pminy%=FNword
 1000 pmaxx%=FNword:pmaxy%=FNword
 1030 SCX=1280/(pmaxx%-pminx%)
 1040 SCY=1024/(pmaxy%-pminy%)
 1050 IF SCX<SCY THEN SC=SCX*.9 ELSE SC=
SCY*.9
 1060 ORIGIN 5Ø-pminx%*SC,64-pminy%*SC
 1070 PRINT"Reading shape definition..."
;
 1080 lines%=Ø:s2%=Ø
 1090 REPEAT
 1100  PROCreadline
 1110 UNTIL lines%=2 OR EOF#i%
 1120 CLOSE#i%:i%=Ø
 1130 IF lines%<2 THEN ERROR 1234,"Incom
plete shape definition"
 1140 len1%=s2%-3
 1150 len2%=pts%-s2%-1
 1160 CLS
 1170
 1180 len()=10
 1190 FOR T%=-1 TO Ø
 1200  L=Ø:len(Ø,T%+1)=Ø
 1210  X=FNX(Ø,T%):Y=FNY(Ø,T%)
 1220  MOVE X*SC,Y*SC
 1230  IF T% THEN L%=len1% ELSE L%=len2%
 1240  FOR A%=Ø TO L%-1
 1250   FOR P=1/32 TO 1 STEP 1/32
 1260    OX=X:OY=Y
 1270    X=FNX(A%+P,T%):Y=FNY(A%+P,T%)
 1280    DRAW  X*SC,Y*SC
 1290    L+=SQR((X-OX)^2+(Y-OY)^2)
 1300   NEXT
 1310   len(A%+1,T%+1)=L
 1320  NEXT
 1330  FOR A%=Ø TO L%
 1340   len(A%,T%+1)=len(A%,T%+1)/L
 1350  NEXT
 1360 NEXT
 1370
 1380 ENDPROC
 1390 :
 1400 DEF PROCreadline
 1410 LOCAL start%
 1420 ot%=FNword
 1430 IF ot%=2 THEN
 1440  PTR#i%=32+PTR#i%:REM ignore bound
ing box & style
 1450  style%=FNword
 1460  IF style% AND 128 THEN junk%=FNwo
rd:PTR#i%=junk%*4+PTR#i%
 1470  junk%=FNword
 1480  pts%=s2%
 1490  X(pts%)=FNword:Y(pts%)=FNword
 1500  REPEAT
 1510   act%=FNword
 1520   IF act%=5 THEN act%=FNword
 1530   pts%+=1
 1540   IF pts%>MP% THEN ERROR 1234,"Too
 many points in shape definition"
 1550   CASE act% OF
 1560    WHEN Ø:REM
 1570    WHEN 2:ERROR 1234,"Cannot have
moves in shape definition"
 1580    WHEN 6:line%(pts%-1)=FALSE
 1590     XC1(pts%-1)=FNword:YC1(pts%-1)
=FNword
 1600     XC2(pts%)=FNword:YC2(pts%)=FNw
ord
 1610     X(pts%)=FNword:Y(pts%)=FNword
 1620    WHEN 8:line%(pts%-1)=TRUE
 1630     X(pts%)=FNword:Y(pts%)=FNword
 1640    OTHERWISE E$="Unknown path acti
on ("+STR$(act%)+") at &"+STR$~(PTR#i%)
 1650     ERROR 1234,E$
 1660   ENDCASE
 1670  UNTIL act%=Ø
 1680  lines%+=1
 1690  IF lines%=1 THEN s2%=pts%+2
 1700 ELSE
 1710  T%=FNword-8
 1720  PTR#i%=T%+PTR#i%
 1730 ENDIF
 1740 ENDPROC
 1750 :
 1760 DEF PROCdo_object
 1770 LOCAL end%
 1780 SYS "Hourglass_Percentage",1ØØ*PTR
#i%/ext%
 1790 ot%=FNword:end%=PTR#i%+FNword-4
 1800 CASE (ot% AND &FF) OF
 1810  WHEN 2:PROCdo_path
 1820  WHEN 6:PROCputw(ot%):PROChead_her
e(TRUE)
 1830   PROCignore(16)
 1840   PROCcopy(12)
 1850   REPEAT
 1860    PROCdo_object
 1870   UNTIL PTR#i%>=end%
 1880   PROChead_now
 1890  WHEN 1,5,7,9:PROCputw(ot%):PROChe
ad_here(TRUE)
 1900   l%=FNword:b%=FNword
 1910   r%=FNword:t%=FNword
 1920   PROCbbox(l%,b%)
 1930   PROCbbox(r%,t%)
 1940   REPEAT
 1950    PROCputw(FNword)
 1960   UNTIL PTR#i%>=end%
 1970   PROChead_now
 1980  OTHERWISE:PROCputw(ot%):PROChead_
here(FALSE)
 1990   REPEAT
 2000    PROCputw(FNword)
 2010   UNTIL PTR#i%>=end%
 2020   PROChead_now
 2030 ENDCASE
 2040 ENDPROC
 2050 :
 2060 DEF PROCdo_path
 2070 PROCputw(ot%):PROChead_here(TRUE)
 2080 PROCignore(16)
 2090 pathcol%=FNword
 2100 fillcol%=FNword
 2110 width%=FNword
 2120 style%=FNword
 2130 PROCputw(pathcol%)
 2140 PROCputw(fillcol%)
 2150 PROCputw(width%*SF)
 2160 PROCputw(style%)
 2170 IF style% AND 128 THEN
 2180  REM copy dotted line data
 2190  PROCcopy(4)
 2200  T%=FNword:PROCputw(T%)
 2210  PROCcopy(T%*4)
 2220 ENDIF
 2230 REPEAT
 2240  act%=FNword
 2250  CASE act% OF
```

```
2260   WHEN 0,4,5:PROCputw(act%)
2270   WHEN 2:REM move
2280    xs%=FNword:ys%=FNword
2290    MOVE xs%*VS,ys%*VS
2300    PROCputw(2)
2310    PROCputxy(xs%,ys%)
2320   WHEN 6:REM bezier curve
2330    xc1%=FNword:yc1%=FNword
2340    xc2%=FNword:yc2%=FNword
2350    xe%=FNword:ye%=FNword
2360    FOR p=s TO 1 STEP s
2370     DRAW FNx(p)*VS,FNy(p)*VS
2380    NEXT
2390    IF maxlen%=0 THEN
2400     PROCputw(6)
2410     PROCputxy(xc1%,yc1%)
2420     PROCputxy(xc2%,yc2%)
2430     PROCputxy(xe%,ye%)
2440    ELSE
2450     PROCsplitbez(xs%,ys%,xc1%,yc1%,xc2%,yc2%,xe%,ye%)
2460    ENDIF
2470    xs%=xe%:ys%=ye%
2480   WHEN 8:REM line draw
2490    xe%=FNword:ye%=FNword
2500    DRAW xe%*VS,ye%*VS
2510    IF maxlen%=0 THEN
2520     PROCputw(8)
2530     PROCputxy(xe%,ye%)
2540    ELSE
2550     PROCsplitbez(xs%,ys%,xs%*.67+xe%*.33,ys%*.67+ye%*.33,xs%*.33+xe%*.67,ys%*.33+ye%*.67,xe%,ye%)
2560    ENDIF
2570    xs%=xe%:ys%=ye%
2580   OTHERWISE ERROR 1234,"Unknown path action ("+STR$(act%)+") at &";STR$~(PTR#i%)
2590  ENDCASE
2600 UNTIL act%=0
2610 PROChead_now
2620 ENDPROC
2630 :
2640 DEF PROCsplitbez(xs%,ys%,xc1%,yc1%,xc2%,yc2%,xe%,ye%)
2650 LOCAL x%,y%,ox%,oy%,L,n%,i%,p1,p2
2660 x%=xs%:y%=ys%
2670 FOR p=s TO 1 STEP s
2680  ox%=x%:oy%=y%
2690  x%=FNx(p):y%=FNy(p)
2700  L+=SQR((x%-ox%)^2+(y%-oy%)^2)
2710 NEXT
2720 n%=L/maxlen%
2730 x%=xs%:y%=ys%
2740 FOR i%=0 TO n%
2750  p1=i%/(n%+1):p2=(i%+1)/(n%+1)
2760  ox%=x%:oy%=y%
2770  x%=FNx(p2):y%=FNy(p2)
2780  L=(p2-p1)/3
2790  PROCputw(6)
2800  PROCputxy(ox%+FNdxdp(p1)*L,oy%+FNdydp(p1)*L)
2810  PROCputxy(x%-FNdxdp(p2)*L,y%-FNdydp(p2)*L)
2820  PROCputxy(x%,y%)
2830 NEXT
2840 ENDPROC
2850 :
2860 DEF PROCputxy(x%,y%)
2870 PROCalterxy(x%,y%)
2880 PROCputw(x%):PROCputw(y%)
2890 PROCbbox(x%,y%)
2900 ENDPROC
2910 :
2920 DEF FNdim(Q$)
2930 LOCAL V%
2940 PRINT'"Enter ";Q$
2950 REPEAT
2960  INPUT":"Q$
2970  IF Q$="" OR Q$="0" THEN VDU 11:PRINT":0":Q$="IN"
2980  CASE RIGHT$(Q$,2) OF
2990   WHEN "in","IN":V%=VAL(Q$)*&B400
3000   WHEN "cm","CM":V%=VAL(Q$)*18140
3010   OTHERWISE Q$="":PRINT"Units not known/not found.  Please suffix measurement with in/cm."
3020  ENDCASE
3030 UNTIL Q$<>""
3040 =V%
3050 :
3060 REMDEF Bezier curve procedures
3070 :
3080 DEF FNx(p)
3090 LOCAL q:q=1-p
3100 =xs%*q^3+xc1%*3*p*q*q+xc2%*3*p*p*q+xe%*p^3
3110 :
3120 DEF FNy(p)
3130 LOCAL q:q=1-p
3140 =ys%*q^3+yc1%*3*p*q*q+yc2%*3*p*p*q+ye%*p^3
3150 :
3160 DEF FNdxdp(p)
3170 LOCAL q:q=1-p
3180 =-3*q*q*xs%+3*q*(q-2*p)*xc1%+3*p*(2*q-p)*xc2%+3*p*p*xe%
3190 :
3200 DEF FNdydp(p)
3210 LOCAL q:q=1-p
3220 =-3*q*q*ys%+3*q*(q-2*p)*yc1%+3*p*(2*q-p)*yc2%+3*p*p*ye%
3230 :
3240 REMDEF Procedures to read a Draw file
3250 :
3260 DEF FNword
3270 =BGET#i% OR (&100*BGET#i%) OR (&10000*BGET#i%) OR ((BGET#i%)<<24)
3280 :
3290 DEF PROCignore(N%)
3300 REM ignore N bytes from source file
3310 PTR#i%=PTR#i%+N%
3320 ENDPROC
3330 :
3340 REMDEF Procedures to create a Draw file
3350 :
3360 DEF PROCputw(A%)
3370 BPUT#c%,A% AND &FF
3380 BPUT#c%,(A%>>>8) AND &FF
3390 BPUT#c%,(A%>>>16) AND &FF
3400 BPUT#c%,(A%>>>24) AND &FF
3410 ENDPROC
3420 :
3430 DEF PROCcopy(N%)
3440 REM copy N bytes from source to destination file
3450 LOCAL I%
3460 FOR I%=1 TO N%
3470  BPUT#c%,BGET#i%
3480 NEXT
3490 ENDPROC
3500 :
3510 DEF PROChead_here(box%)
3520 IF lev%=maxlev% THEN ERROR 1234,"Too many nested groups.  Edit program to increase limit."
3530 lev%+=1
3540 box%(lev%)=box%
3550 start%(lev%)=PTR#c%
3560 IF lev%>0 THEN PROCputw(0):REM reserve space for length word
3570 IF box% THEN
3580  REM reserve space for bounding box
3590  PROCputw(0):PROCputw(0)
3600  PROCputw(0):PROCputw(0)
3610 ENDIF
3620 l%(lev%)=big%:b%(lev%)=big%
3630 r%(lev%)=-big%:t%(lev%)=-big%
3640 ENDPROC
3650 :
3660 DEF PROChead_now
3670 LOCAL end%
3680 end%=PTR#c%
3690 PTR#c%=start%(lev%)
3700 IF lev%>0 THEN PROCputw(end%-start%(lev%)+4)
3710 IF box%(lev%) THEN
3720  PROCputw(l%(lev%)):PROCputw(b%(lev%))
3730  PROCputw(r%(lev%)+1):PROCputw(t%(lev%)+1)
3740 ENDIF
3750 IF lev%>0 THEN
3760  lev%-=1
3770  IF l%(lev%+1)<l%(lev%) THEN l%(lev%)=l%(lev%+1)
3780  IF b%(lev%+1)<b%(lev%) THEN b%(lev%)=b%(lev%+1)
3790  IF r%(lev%+1)>r%(lev%) THEN r%(lev%)=r%(lev%+1)
3800  IF t%(lev%+1)>t%(lev%) THEN t%(lev%)=t%(lev%+1)
3810 ENDIF
3820 PTR#c%=end%
3830 ENDPROC
3840 :
3850 DEF PROCbbox(x%,y%)
3860 REM stretch bounding box to contain (x%,y%)
3870 IF x%<l%(lev%) THEN l%(lev%)=x%
3880 IF y%<b%(lev%) THEN b%(lev%)=y%
3890 IF x%>r%(lev%) THEN r%(lev%)=x%
3900 IF y%>t%(lev%) THEN t%(lev%)=y%
3910 ENDPROC
3920 :
3930 DEF PROCalterxy(RETURN X,RETURN Y)
3940 LOCAL A,B,C
3950 B=(X-minx%)/wid%
3960 A=(Y-miny%)/hei%
3970 C=0
3980 WHILE B>len(INT(C)+1,0):C+=1:ENDWHILE
3990 C+=(B-len(INT(C),0))/(len(INT(C)+1,0)-len(INT(C),0))
4000 X=A*FNX(C,-1):Y=A*FNY(C,-1)
4010 C=0
4020 WHILE B>len(INT(C)+1,1):C+=1:ENDWHILE
4030 C+=(B-len(INT(C),1))/(len(INT(C)+1,1)-len(INT(C),1))
4040 X+=(1-A)*FNX(C,0):Y+=(1-A)*FNY(C,0)
4050 ENDPROC
4060 :
4070 DEF FNX(P,top%)
4080 LOCAL N%,Q
4090 N%=FNvalidN(P,top%)
4100 P-=N%:Q=1-P
4110 N%-=(top%=0)*s2%
4120 IF line%(N%) THEN =Q*X(N%)+P*X(N%+1)
4130 =X(N%)*Q^3+XC1(N%)*3*P*Q*Q+XC2(N%+1)*3*P*P*Q+X(N%+1)*P^3
4140 :
4150 DEF FNY(P,top%)
4160 LOCAL N%,Q
4170 N%=FNvalidN(P,top%)
4180 P-=N%:Q=1-P
4190 N%-=(top%=0)*s2%
4200 IF line%(N%) THEN =Q*Y(N%)+P*Y(N%+1)
4210 =Y(N%)*Q^3+YC1(N%)*3*P*Q*Q+YC2(N%+1)*3*P*P*Q+Y(N%+1)*P^3
4220 :
4230 DEF FNvalidN(I%,top%)
4240 IF I%<0 THEN =0
4250 LOCAL L%
4260 IF top% THEN L%=len1% ELSE L%=len2%
4270 IF I%>=L% THEN =L%-1
4280 =I%
```

Listing 4 – Drawcurl

```
  10 REM >DrawCurl (Draw4)
  20 REM by Michael Attenborough
  30 REM for 32-bit machines
  40 REM (c) BAU Dec 1992
  50 :
  60 MODE 8
  70 PROCinit
  80 ON ERROR GOTO 790
  90
 100 PRINT ''"  Draw file Curler"''
 110 REPEAT
 120  PRINT'"Enter input filename"
 130  INPUT":"drawin$
 140  i%=OPENIN(drawin$)
 150  IF i%=0 THEN PRINT"Input file not found."
 160 UNTIL i%
 170 REPEAT
 180  PRINT'"Enter output filename"
 190  INPUT":"drawout$
 200  IF drawout$=drawin$ THEN PRINT "Filename must be different":drawout$=""
 210  c%=OPENOUT(drawout$)
 220  IF c%=0 THEN PRINT"Can't open output file"
 230 UNTIL c%
 240 REPEAT
 250  radius=FNdim("radius of curvature in in/cm")
 260 UNTIL radius>0
 270 maxlen%=FNdim(" maximum length of path segment (0=no limit)")
 280 PROCgetangles
 290
 300 SYS "Hourglass_On"
 310 T%=FNword
 320 IF T%<>&77617244 THEN ERROR 1234,"Not a Draw file."
 330 ext%=EXT#i%
 340 PROCputw(T%)
 350 verhi%=FNword:verlo%=FNword
 360 PROCputw(verhi%):PROCputw(verlo%)
 370 PROCcopy(12):REM use same name for source of file
 380
 390 REM read bounding rectangle of file
 400 pminx%=FNword:pminy%=FNword
 410 pmaxx%=FNword:pmaxy%=FNword
 420 XVS=1280/(pmaxx%-pminx%)
 430 YVS=1024/(pmaxy%-pminy%)
 440 IF XVS<YVS THEN VS=XVS*.9 ELSE VS=YVS*.9
 450 REM
 460 ow%=pmaxx%-pminx%:oh%=pmaxy%-pminy%
 470 ocx%=(pmaxx%+pminx%)*.5:ocy%=(pmaxy%+pminy%)*.5
 480 R%=ow%/ABS(Ar)
 490 SF=radius/R%
 500 maxlen%=maxlen%/SF
 510 xo%=R%+oh%*.5:yo%=xo%
 520 CLS
 530 ORIGIN 50-pminx%*VS,64-pminy%*VS
 540
 550 lev%=-1
 560 PROChead_here(TRUE)
 570 REPEAT
 580  PROCdo_object
 590 UNTIL EOF#i%
 600 PROChead_now
 610
 620 CLOSE#i%:i%=0
 630 CLOSE#c%:c%=0
 640 OSCLI("SetType "+drawout$+" AFF")
 650 SYS "Hourglass_Off"
 660 ON
 670 END
 680 :
 690 DEF PROCinit
 700 maxlev%=32
 710 DIM start%(maxlev%),box%(maxlev%)
 720 DIM l%(maxlev%),b%(maxlev%),r%(maxlev%),t%(maxlev%)
 730 s=1/32:REM step for drawing bezier curves
 740 big%=&7FFFFFFF
 750 i%=0:c%=0
 760 ENDPROC
 770 :
 780 REM error trap
 790 ON ERROR OFF
 800 REPORT
 810 IF ERR=1234 THEN PRINT ELSE PRINT;" at line ";ERL
 820 SYS "Hourglass_Smash"
 830 IF c%<>0 THEN CLOSE#c%
 840 IF i%<>0 THEN CLOSE#i%
 850 ON
 860 END
 870 :
 880 DEF PROCdo_object
 890 LOCAL end%
 900 SYS "Hourglass_Percentage",100*PTR#i%/ext%
 910 ot%=FNword:end%=PTR#i%+FNword-4
 920 CASE (ot% AND &FF) OF
 930  WHEN 2:PROCdo_path
 940  WHEN 6:REM group
 950   PROCputw(ot%):PROChead_here(TRUE)
 960   PROCignore(16):REM ignore old bounding box
 970   PROCcopy(12):REM use same name for object
 980   REPEAT
 990    PROCdo_object
1000   UNTIL PTR#i%>=end%
1010   PROChead_now
1020  WHEN 1,5,7,9:REM copy unchanged but note bounding box
1030   PROCputw(ot%):PROChead_here(TRUE)
1040   l%=FNword:b%=FNword
1050   r%=FNword:t%=FNword
1060   PROCbbox(l%,b%)
1070   PROCbbox(r%,t%)
1080   REPEAT
1090    PROCputw(FNword)
1100   UNTIL PTR#i%>=end%
1110   PROChead_now
1120  OTHERWISE:REM other types of object: copy unchanged
1130   PROCputw(ot%):PROChead_here(FALSE)
1140   REPEAT
1150    PROCputw(FNword)
1160   UNTIL PTR#i%>=end%
1170   PROChead_now
1180 ENDCASE
1190 ENDPROC
1200 :
1210 DEF PROCdo_path
1220 PROCputw(ot%):PROChead_here(TRUE)
1230 PROCignore(16):REM ignore old bounding box
1240 pathcol%=FNword
1250 fillcol%=FNword
1260 width%=FNword
1270 style%=FNword
1280 PROCputw(pathcol%)
1290 PROCputw(fillcol%)
1300 PROCputw(width%*SF)
1310 PROCputw(style%)
1320 IF style% AND 128 THEN
1330  REM copy dotted line data
1340  PROCcopy(4)
1350  T%=FNword:PROCputw(T%)
1360  PROCcopy(T%*4)
1370 ENDIF
1380 REPEAT
1390  act%=FNword
1400  CASE act% OF
1410   WHEN 0,4,5:PROCputw(act%):REM end or close curve: do nothing
1420   WHEN 2:REM move
1430    xs%=FNword:ys%=FNword
1440    MOVE xs%*VS,ys%*VS
1450    PROCputw(2)
1460    PROCputxy(xs%,ys%):REM transform point
1470   WHEN 6:REM bezier curve
1480    xc1%=FNword:yc1%=FNword
1490    xc2%=FNword:yc2%=FNword
1500    xe%=FNword:ye%=FNword
1510    FOR p=s TO 1 STEP s
1520     DRAW FNx(p)*VS,FNy(p)*VS
1530    NEXT
1540    IF maxlen%=0 THEN
1550     PROCputw(6)
1560     PROCputxy(xc1%,yc1%):REM transform 1st control point
1570     PROCputxy(xc2%,yc2%):REM transform 2nd control point
1580     PROCputxy(xe%,ye%):REM transform end point
1590    ELSE
1600     PROCsplitbez(xs%,ys%,xc1%,yc1%,xc2%,yc2%,xe%,ye%)
1610    ENDIF
1620    xs%=xe%:ys%=ye%
1630   WHEN 8:REM line draw
1640    xe%=FNword:ye%=FNword
1650    DRAW xe%*VS,ye%*VS
1660    IF maxlen%=0 THEN
1670     PROCputw(8)
1680     PROCputxy(xe%,ye%):REM transform point
1690    ELSE
1700     PROCsplitbez(xs%,ys%,xs%*.67+xe%*.33,ys%*.67+ye%*.33,xs%*.33+xe%*.67,ys%*.33+ye%*.67,xe%,ye%)
1710    ENDIF
1720    xs%=xe%:ys%=ye%
1730   OTHERWISE ERROR 1234,"Unknown path action ("+STR$(act%)+") at &";STR$~(PTR#i%)
1740  ENDCASE
1750 UNTIL act%=0
1760 PROChead_now
1770 ENDPROC
1780 :
```

```
1790 DEF PROCsplitbez(xs%,ys%,xc1%,yc1%,xc2%,yc2%,xe%,ye%)
1800 LOCAL x%,y%,ox%,oy%,L,n%,i%,p1,p2
1810 x%=xs%:y%=ys%
1820 FOR p=s TO 1 STEP s
1830  ox%=x%:oy%=y%
1840  x%=FNx(p):y%=FNy(p)
1850  L+=SQR((x%-ox%)^2+(y%-oy%)^2)
1860 NEXT
1870 n%=L/maxlen%:REM no. of breaks needed
1880 x%=xs%:y%=ys%
1890 FOR i%=0 TO n%
1900  p1=i%/(n%+1):p2=(i%+1)/(n%+1)
1910  ox%=x%:oy%=y%
1920  x%=FNx(p2):y%=FNy(p2)
1930  L=(p2-p1)/3
1940  PROCputw(6)
1950  PROCputxy(ox%+FNdxdp(p1)*L,oy%+FNdydp(p1)*L)
1960  PROCputxy(x%-FNdxdp(p2)*L,y%-FNdydp(p2)*L)
1970  PROCputxy(x%,y%)
1980 NEXT
1990 ENDPROC
2000 :
2010 DEF PROCputxy(x%,y%)
2020 PROCalterxy(x%,y%)
2030 PROCputw(x%):PROCputw(y%)
2040 PROCbbox(x%,y%)
2050 ENDPROC
2060 :
2070 DEF FNdim(Q$)
2080 LOCAL V%
2090 PRINT'"Enter ";Q$
2100 REPEAT
2110  INPUT":"Q$
2120  IF Q$="" OR Q$="0" THEN VDU 11:PRINT":0":Q$="IN"
2130  CASE RIGHT$(Q$,2) OF
2140   WHEN "in","IN":V%=VAL(Q$)*&B400
2150   WHEN "cm","CM":V%=VAL(Q$)*18140
2160   OTHERWISE Q$="":PRINT"Units not known/not found.  Please suffix measurement with in/cm."
2170  ENDCASE
2180 UNTIL Q$<>""
2190 =V%
2200 :
2210 REMDEF Bezier curve procedures
2220 :
2230 DEF FNx(p)
2240 LOCAL q:q=1-p
2250 =xs%*q^3+xc1%*3*p*q*q+xc2%*3*p*p*q+xe%*p^3
2260 :
2270 DEF FNy(p)
2280 LOCAL q:q=1-p
2290 =ys%*q^3+yc1%*3*p*q*q+yc2%*3*p*p*q+ye%*p^3
2300 :
2310 DEF FNdxdp(p)
2320 LOCAL q:q=1-p
2330 =-3*q*q*xs%+3*q*(q-2*p)*xc1%+3*p*(2*q-p)*xc2%+3*p*p*xe%
2340 :
2350 DEF FNdydp(p)
2360 LOCAL q:q=1-p
2370 =-3*q*q*ys%+3*q*(q-2*p)*yc1%+3*p*(2*q-p)*yc2%+3*p*p*ye%
2380 :
2390 REMDEF Procedures to read a Draw file
2400 :
2410 DEF FNword
2420 =BGET#i% OR (&100*BGET#i%) OR (&10000*BGET#i%) OR ((BGET#i%)<<24)
2430 :
2440 DEF PROCignore(N%)
2450 REM ignore N bytes from source file
2460 PTR#i%=PTR#i%+N%
2470 ENDPROC
2480 :
2490 REMDEF Procedures to create a Draw file
2500 :
2510 DEF PROCputw(A%)
2520 BPUT#c%,A% AND &FF
2530 BPUT#c%,(A%>>>8) AND &FF
2540 BPUT#c%,(A%>>>16) AND &FF
2550 BPUT#c%,(A%>>>24) AND &FF
2560 ENDPROC
2570 :
2580 DEF PROCcopy(N%)
2590 REM copy N bytes from source to destination file
2600 LOCAL I%
2610 FOR I%=1 TO N%
2620  BPUT#c%,BGET#i%
2630 NEXT
2640 ENDPROC
2650 :
2660 DEF PROChead_here(box%)
2670 IF lev%=maxlev% THEN ERROR 1234,"Too many nested groups.  Edit program to increase limit."
2680 lev%+=1
2690 box%(lev%)=box%
2700 start%(lev%)=PTR#c%
2710 IF lev%>0 THEN PROCputw(0):REM reserve space for length word
2720 IF box% THEN
2730  REM reserve space for bounding box
2740  PROCputw(0):PROCputw(0)
2750  PROCputw(0):PROCputw(0)
2760 ENDIF
2770 l%(lev%)=big%:b%(lev%)=big%
2780 r%(lev%)=-big%:t%(lev%)=-big%
2790 ENDPROC
2800 :
2810 DEF PROChead_now
2820 LOCAL end%
2830 end%=PTR#c%
2840 PTR#c%=start%(lev%)
2850 IF lev%>0 THEN PROCputw(end%-start%(lev%)+4)
2860 IF box%(lev%) THEN
2870  PROCputw(l%(lev%)):PROCputw(b%(lev%))
2880  PROCputw(r%(lev%)+1):PROCputw(t%(lev%)+1)
2890 ENDIF
2900 IF lev%>0 THEN
2910  lev%-=1
2920  REM alter the bounding box of the group this object is in
2930  IF l%(lev%+1)<l%(lev%) THEN l%(lev%)=l%(lev%+1)
2940  IF b%(lev%+1)<b%(lev%) THEN b%(lev%)=b%(lev%+1)
2950  IF r%(lev%+1)>r%(lev%) THEN r%(lev%)=r%(lev%+1)
2960  IF t%(lev%+1)>t%(lev%) THEN t%(lev%)=t%(lev%+1)
2970 ENDIF
2980 PTR#c%=end%
2990 ENDPROC
3000 :
3010 DEF PROCbbox(x%,y%)
3020 REM stretch bounding box to contain (x%,y%)
3030 IF x%<l%(lev%) THEN l%(lev%)=x%
3040 IF y%<b%(lev%) THEN b%(lev%)=y%
3050 IF x%>r%(lev%) THEN r%(lev%)=x%
3060 IF y%>t%(lev%) THEN t%(lev%)=y%
3070 ENDPROC
3080 :
3090 REMDEF Curl-specific procedures
3100 :
3110 DEF PROCgetangles
3120 CLS:OFF
3130 ORIGIN 640,512
3140 MOUSE RECTANGLE -100,0,200,4
3150 MOUSE TO 0,0
3160 GCOL 1
3170 CIRCLE 0,0,500
3180 CIRCLE 0,0,400
3190 GCOL 3,3
3200 C=2:S=2:A=0
3210 PRINTTAB(30,15);"   Use mouse to  "
3220 PRINTTAB(30,16);"  set start angle "
3230 REPEAT
3240  WAIT
3250  LINE 408*S,408*C,492*S,492*C
3260  MOUSE X%,Y%,B%
3270  MOUSE TO 0,0
3280  A+=X%/4
3290  PRINTTAB(30,18);A;"    ";
3300  C=COSRAD(A):S=SINRAD(A)
3310  LINE 408*S,408*C,492*S,492*C
3320 UNTIL B%
3330 Alo=A
3340 ax%=POS-3
3350
3360 PRINTTAB(30,15);"                 "
3370 PRINTTAB(30,16);"      let go      "
3380 REPEAT
3390  MOUSE X%,Y%,B%
3400 UNTIL B%=0
3410
3420 MOUSE RECTANGLE A*4-1440,0,2880,4
3430 MOUSE TO A*4,0
3440 OC=C:OS=S:OX%=A*4
3450 PRINTTAB(30,15);"   Use mouse to  "
3460 PRINTTAB(30,16);"   set end angle  "
3470 REPEAT
3480  MOUSE X%,Y%,B%
3490  IF X%<>OX% THEN
3500   WAIT
3510   IF A>Alo THEN
3520    MOVE 0,0:MOVE 450*S,450*C:PLOT &A5,450*OS,450*OC
3530    MOVE 450*S,450*C
3540    PLOT 1,-32*(S+C),32*(S-C):PLOT 0,64*S,64*C:PLOT 1,32*(C-S),-32*(C+S)
3550   ENDIF
3560   IF A<Alo THEN
3570    MOVE 0,0:MOVE 450*OS,450*OC:PLOT &A5,450*S,450*C
3580    PLOT 1,32*(C+S),32*(C-S):PLOT 0,-64*S,-64*C:PLOT 1,32*(S-C),32*(C+S)
3590   ENDIF
3600   A=X%/4
3610   C=COSRAD(A):S=SINRAD(A)
3620   IF A>Alo THEN
3630    MOVE 0,0:MOVE 450*S,450*C:PLOT &A5,450*OS,450*OC
3640    MOVE 450*S,450*C
3650    PLOT 1,-32*(S+C),32*(S-C):PLOT 0,64*S,64*C:PLOT 1,32*(C-S),-32*(C+S)
3660   ENDIF
3670   IF A<Alo THEN
3680    MOVE 0,0:MOVE 450*OS,450*OC:PLOT &A5,450*S,450*C
3690    PLOT 1,32*(C+S),32*(C-S):PLOT 0,-64*S,-64*C:PLOT 1,32*(S-C),32*(C+S)
3700   ENDIF
3710   PRINTTAB(ax%,18);"to ";A;"    "
3720   OX%=X%
3730  ENDIF
3740 UNTIL B% AND A<>Alo
3750 Ar=(A-Alo)*PI/180
3760 Amid=RAD(Alo)+.5*Ar
3770 GCOL 0,3
3780 ENDPROC
3790 :
3800 DEF PROCalterxy(RETURN X,RETURN Y)
3810 LOCAL R,A
3820 R=R%+(Y-ocy%)*SGN(Ar):REM convert Y coord to a radius
3830 A=Amid+Ar*(X-ocx%)/ow%:REM convert X co-ord to an angle
3840 X=(xo%+R*SIN(A))*SF
3850 Y=(yo%+R*COS(A))*SF
3860 ENDPROC
```

ASSEMBLY LINE

Listing 1 – Arm1

```
10 REM >ARM1
20 REM By Dave Lawrence
30 REM For 32 bit machines
40 REM (C) BAU Dec 1992
50 :
60 DIM code 256
70 count1=3
80 count2=4
90 step=5
100 total=6
110 array=7
120 size=8
130 result=9
140 link=14
150 pc=15
160 FOR pass=0 TO 2 STEP 2
170 P%=code
180 [OPT pass
190 .multarray
200 MOV     size,R0
210 MOV     count1,#0
220 .loop1
230 MOV     count2,#0
240 .loop2
250 MOV     step,#0
260 MOV     total,#0
270 .loop3
280 ADR     array,array1
290 MLA     array,count1,size,array
300 LDRB    R0,[array,step]
310 ADR     array,array2
320 MLA     array,step,size,array
330 LDRB    R1,[array,count2]
340 MLA     total,R0,R1,total
350 ADD     step,step,#1
360 CMP     step,size
370 BNE     loop3
380 ADR     array,result
390 MLA     array,count1,size,array
400 STRB    total,[array,count2]
410 ADD     count2,count2,#1
420 CMP     count2,size
430 BNE     loop2
440 ADD     count1,count1,#1
450 CMP     count1,size
460 BNE     loop1
470 MOV     pc,link
480 .array1
490 EQUD 0:EQUD 0:EQUD 0:EQUD 0
500 .array2
510 EQUD 0:EQUD 0:EQUD 0:EQUD 0
520 .result
530 EQUD 0:EQUD 0:EQUD 0:EQUD 0
540 ]NEXT
550 Size=3
560 DIM a(Size-1,Size-1),b(Size-1,Size-1),c(Size-1,Size-1)
570 FOR y=0 TO Size-1
580 FOR x=0 TO Size-1
590 a=RND(4)
600 b=RND(4)
610 array1?(x+y*Size)=a
620 array2?(x+y*Size)=b
630 a(y,x)=a
640 b(y,x)=b
650 NEXT
660 NEXT
670 A%=Size
680 CALL multarray
690 c()=a().b()
700 FOR y=0 TO Size-1
710 FOR x=0 TO Size-1
720 PRINTresult?(x+y*Size);" [";c(y,x);"]",;
730 NEXT
740 PRINT
750 NEXT
```

THE YOUNG ONES

Listing 1 – Tree6

```
10 REM >Tree6 (Kids1)
20 REM by Ben Carter
30 REM for 32-bit machines
40 REM (c) BAU Dec 1992
50 :
60 MODE 12
70 OFF
80 nop=100
90 DIM px(nop),py(nop),pxd(nop),pd(nop),pdd(nop)
100 REPEAT
110 CLS
120 FOR i=1 TO nop
130 px(i)=0
140 py(i)=0
150 NEXT
160 px(1)=512
170 py(1)=0
180 pxd(1)=RND(1)-.2
190 pd(1)=RND(200)+200
200 nopp=1
210 f=0
220 REPEAT
230 nos=0
240 FOR i=1 TO nopp
250 IF px(i)=0 AND py(i)=0 THEN
260 PROCisf0
270 nos+=1
280 ELSE
290 MOVE px(i),py(i)
300 px(i)+=pxd(i)
310 gt=RND(6)
320 py(i)+=gt
330 DRAW px(i),py(i)
340 pdd(i)+=gt
350 IF pd(i)<15 THEN
360 px(i)=0
370 py(i)=0
380 ELSE
390 IF pd(i)<pdd(i) THEN
400 pdd(i)=0
410 PROCfindspace
420 pd(f)=pd(i)/((RND(19)/10)+1)
430 pxd(f)=pxd(i)-(RND(20)/10)
440 px(f)=px(i)
450 py(f)=py(i)
460 pdd(f)=0
470 pd(i)=pd(i)/((RND(19)/10)+1)
480 pxd(i)+=(RND(20)/10)
490 PROCexpand
500 f=0
510 ENDIF
520 IF RND(100)=1 THEN
530 PROCfindspace
540 pd(f)=pd(i)/((RND(19)/10)+1)
550 pxd(f)=pxd(i)-(RND(20)/10)
560 px(f)=px(i)
570 py(f)=py(i)
580 pdd(f)=0
590 pxd(f)+=(RND(20)/10)
600 PROCexpand
610 f=0
620 ENDIF
630 ENDIF
640 ENDIF
650 NEXT
660 IF nos=nopp THEN PRINTTAB(0,0);"Stablised."
670 UNTIL INKEY(-99)
680 UNTIL FALSE
690 END
700 :
710 DEF PROCfindspace
720 IF f<>0 THEN ENDPROC
730 FOR j=1 TO nop
740 IF px(j)=0 AND py(j)=0 THEN f=j:j=100
750 NEXT
```

```
760 IF f=0 THEN PRINT"Sorry! Unable to find space for new point.":VDU 7:END
770 ENDPROC
780 :
790 DEF PROCisf0
800 IF f=0 THEN f=i
810 ENDPROC
820 :
830 DEF PROCexpand
840 IF f>nopp THEN nopp=f
850 ENDPROC
```

Listing 2 – City2

```
10 REM >City2 (Kids2)
20 REM by Ben Carter
30 REM for 32-bit machines
40 REM (c) BAU Dec 1992
50 :
60 MODE 12
70 OFF
80 x=640:y=512
90 br=14
100 d=1
110 s=10
120 c=1
130 a=1
140 MOVE x,y
150 REPEAT
160 IF RND(4)=1 THEN d+=RND(3)-2
170 IF d=9 THEN d=1
180 IF d=0 THEN d=8
190 GCOL c
200 PROCmove
210 IF a=1 THEN c+=1 ELSE c-=1
220 IF c=16 THEN c=1
230 IF c=0 THEN c=15
240 IF x>1240 OR x<0 OR y>1240 OR y<0 THEN x=640:y=512:MOVE x,y:c=FNwhich
250 UNTIL INKEY-99
260 FOR i=1 TO 15
270 COLOUR i,0
280 NEXT
290 o=0
300 REPEAT
310 o+=1
320 IF o<>0 COLOUR o,0,0,0
330 FOR j=1 TO 15
340 IF o<>j COLOUR o+16-j,br*(16-j),br*(16-j),br*(16-j)
350 NEXT
360 IF o=15 THEN o=0
370 IF INKEY-10 br+=1
380 IF INKEY-12 br-=1
390 WAIT:WAIT
400 UNTIL FALSE
410 END
420 :
430 DEF PROCmove
440 IF d=8 OR d=10 OR d=2 THEN y+=s
450 IF d=4 OR d=5 OR d=6 THEN y-=s
460 IF d=2 OR d=3 OR d=4 THEN x+=s
470 IF d=6 OR d=7 OR d=8 THEN x-=s
480 DRAW x,y
490 ENDPROC
500 :
510 DEF FNwhich
520 IF RND(2)=1 THEN a=1:=1 ELSE a=2:=15
```

Listing 3 – !Runimage

```
10 REM >!RunImage (Kids3)
20 REM EasyDel
30 REM by Nicholas Marriott
40 REM for 32-bit machines
50 REM (c) BAU Dec 1992
60 :
70 ON ERROR PROCerr
80 DIM b% &200,in% &100,err% &200,m% &80
90 $b%="TASK"
100 SYS "Wimp_Initialise",200,!b%,"Easy Delete"+CHR$0
110 SYS "Wimp_OpenTemplate",,"<Del$Dir>.Templates"
120 SYS "Wimp_LoadTemplate",,b%,in%,in%+&100,-1,"Info",0
130 SYS "Wimp_CreateWindow",,b% TO infowin%
140 SYS "Wimp_CloseTemplate"
150 PROCmenu
160 icon%=FNiconbar
170 ON ERROR PROCerr
180 REPEAT
190 SYS "Wimp_Poll",&FFF9FDBD,b% TO e%
200 CASE e% OF
210 WHEN 2:SYS "Wimp_OpenWindow",,b%
220 WHEN 6:IF b%!12=-2 AND b%!16=icon% PROCmouse(b%)
230 WHEN 9:IF !b%=1 SYS "Wimp_CloseDown":END
240 WHEN 17,18:
250 CASE b%!16 OF
260 WHEN 0:SYS "Wimp_CloseDown":END
270 WHEN 3:IF b%!20=-2 AND b%!24=icon% AND b%!40>&0 PROCstart
280 ENDCASE
290 ENDCASE
300 UNTIL FALSE
310 :
320 DEF PROCmouse(b%)
330 IF b%!8=2 SYS"Wimp_CreateMenu",,m%,!b%-60,176
340 ENDPROC
350 :
360 DEF FNiconbar
370 LOCAL i%
380 b%!0=-2
390 b%!4=0
400 b%!8=0
410 b%!12=68
420 b%!16=696
430 b%!20=&2002
440 $(b%+24)="!EasyDel"
450 SYS "Wimp_CreateIcon",,b% TO i%
460 =i%
470 :
480 DEF PROCmenu
490 $m%="EasyDel"
500 m%!12=&70207
510 m%!16=&50
520 m%!20=40
530 m%!24=0
540 m%!28=0
550 m%!32=infowin%
560 m%!36=&7000019
570 $(m%+40)="Info"
580 m%!52=128
590 m%!56=0
600 m%!60=&7000019
610 $(m%+64)="Quit"
620 ENDPROC
630 :
640 DEF PROCerr
650 SYS "XWimp_CreateMenu",,-1
660 !err%=ERR
670 $(err%+4)=REPORT$+CHR$0
680 SYS "Wimp_ReportError",err%,1,"Easy Delete"TO,j%
690 IF j%=2 SYS "Wimp_CloseDown":END
700 ENDPROC
710 :
720 DEF PROCstart
730 type%=b%!40
740 IF type%=4096 d%=1 ELSE IF type%=8192 d%=2 ELSE d%=0
750 IF d%=1 d$="directory" ELSE IF d%=2 d$="application" ELSE d$="file"
760 SYS "Hourglass_On"
770 f%=b%+44
780 n$=""
790 WHILE?f%>31
800 n$+=CHR$(?f%)
810 f%+=1
820 ENDWHILE
830 SYS "XWimp_CreateMenu",,-1
840 !err%=0
850 $(err%+4)="Delete "+d$+" "+n$+CHR$0
860 SYS "Wimp_ReportError",err%,3,"Easy Delete"TO ,j%
870 IF j%=2 ENDPROC
880 IF d%=1 OR d%=2 PROCdir:ENDPROC
890 OSCLI"ACCESS "+n$+" WR"
900 OSCLI"WIPE "+n$+" F ~C R ~V"
910 ENDPROC
920 :
930 DEF PROCdir
940 OSCLI"ACCESS "+n$+"* WR"
950 OSCLI"WIPE "+n$+" F ~C R ~V"
960 ENDPROC
```

Listing 4 – Easyfiles

```
10 REM >EasyFiles (Kids4)
20 REM Create files for EasyDel
30 REM Files created by Nicholas Marriott
40 REM for 32-bit machines
50 REM (c) BAU Dec 1992
60 :
70 DIM q% &100,w% &1000
80 REPEAT
90 READ file$
100 IF file$<>"*" THEN
110 PRINT file$
120 READ type%,olen%
130 IF type%=&FFF OR type%=&FFE OR type%=&FEB THEN
140 out%=OPENOUT(file$)
150 REPEAT
160 READ line$
170 IF line$<>"*" BPUT#out%,line$
180 UNTIL line$="*"
190 CLOSE#out%
200 SYS "OS_File",18,file$,type%
210 ELSE
220 line%=0
230 d$=""
240 i%=0
250 WHILE i%<olen%
260 b$=FNc
270 IF b$>="a" AND b$<="z" THEN
280 off%=-EVAL("&"+FNc+FNc)
290 FOR k%=0 TO (ASC(b$)-ASC"a"+2)
300 w%?i%=w%?(i%+off%)
310 i%+=1
320 NEXT
330 ELSE
340 w%?i%=EVAL("&"+b$+FNc)
350 i%+=1
360 ENDIF
370 ENDWHILE
380 SYS "OS_File",10,file$,type%,,w%,w%+olen%
390 ENDIF
400 ENDIF
410 UNTIL file$="*"
420 END
430 :
440 DEF FNc
450 LOCAL c$
460 IF d$="" THEN
470 READ d$,ch$
480 line%+=1
490 $q%=d$
500 SYS "OS_CRC",0,q%,q%+LEN(d$),1 TO crc%
510 IF crc%<>EVAL("&"+ch$) PRINT"Error in data line ";line%:END
520 ENDIF
530 c$=LEFT$(d$,1)
540 d$=MID$(d$,2)
550 =c$
560 :
570 DATA "!Boot",&FEB,&37
580 DATA IconSprites <Obey$Dir>.!Sprites
590 DATA Set Del$Dir <Obey$Dir>
600 DATA *
610 DATA "!Run",&FEB,&6E
620 DATA WimpSlot -min 10K -max 10K
630 DATA IconSprites <Obey$Dir>.!Sprites
640 DATA Set Del$Dir <Obey$Dir>
650 DATA Run <Del$Dir>.!RunImage %*0
660 DATA *
670 DATA "!Sprites",&FF9,&308
680 DATA 0100000010a040C030000FC,1D70
690 DATA 0200002165617379646 56Ca,8C0
700 DATA 170004a1C11b09a2417a282,36EB
710 DATA Ca2C94a310Ca3477777777a,FE60
720 DATA 04d07c0D070007e2Ce33a5A,17D1
730 DATA d14b1Cm147700007 0i2Fb3C,2C01
740 DATA 7014Dj287777a1Eb5Ei5070,88DE
750 DATA b14g64B00Bg7Cb0Bd8CB07B,1617
760 DATA eA6BBb1EeA0B0BB88F8F8FF,329F
770 DATA F8BB78hA000708FBB8F8FBF,F6B0
780 DATA BB0F70k148FBBBB8BFFBFk1,69AD
790 DATA 4FFB8BBBF0BBF114BB8B880,1FCF
800 DATA 8a7Fj3CBB8788080099B9BB,B3E0
810 DATA h50B0BB7087a13999999cA9,14E4
820 DATA e8CgB3dC8hFFf0A07FFFFFF,E1D4
830 DATA FFa04d07d0D0FFF0Fj3CcF8,1E0A
840 DATA d14a1Cn14FF0000F0i2Fb3C,C7BF
850 DATA F0k4Dk28FFFFa1Eb5Ei50F0,71B2
860 DATA b14g64i4Db58d8Ch52h3Ch6,352B
870 DATA 7hA0q14z28z3CdEAgCAhA0F,8D4F
880 DATA FfDFcF6e8CgB3dC8hFFgB8F,4D7F
890 DATA F,F281
900 DATA "Templates",&FEC,&20E
910 DATA FFFFFFFF0000000a04c072,B37F
920 DATA Ca0DE201000001a15496E66,CE16
930 DATA 6F0D2D318CF2647261b243A,993
940 DATA a1854a1CA403000002802h36,5825
950 DATA 2807000012000384070 2070,2E60
960 DATA 10C0Ee19FCa5805d5A3Db4D,92EE
970 DATA 30d54b6C78a60b7813a7909,8A28
980 DATA a7DA4a4C34a8954a5864a91,DCA9
990 DATA 3D3000B74F4B0D7469746C6,E636
1000 DATA 5643E0DFE9AaA1CCaA966a7,B723
1010 DATA 4a57FF3D6100078Be4428aB,F25
1020 DATA Db2098e20C8e2097m20b58b,146E
1030 DATA 4094e40B2m4030e6060e60C,761D
1040 DATA BeA41EaF93EaFDD0aB1b88F,9C4B
1050 DATA 8aB9390000174E616D653A0,4648
1060 DATA DdA00EaF29Ce20C4e205075,F938
1070 DATA 72706F73a23aC0b4468e409,A27F
1080 DATA 0e40417574686F723A0Df40,E0F6
1090 DATA 38e60b80b6056657273696F,6494
1100 DATA 6Ec4041626F757420746869,5EB1
1110 DATA 732050726F6772616D0D456,46B3
1120 DATA 173792044656C6574650D55,54A5
1130 DATA 6E4C6F636B73a21656E2064,DF48
1140 DATA c14732066696C65730DA920,409F
1150 DATA 4E6963686F6C6173204D617,FF98
1160 DATA 272696F74742031393920D,5C80
1170 DATA 322E30362C2031362046656,517B
1180 DATA 27275617279c170D,87BB
1190 DATA *
```

Listing 5 – !Runimage

```
10 REM >!RunImage (Kids5)
20 REM FileSys
30 REM by Nicholas Marriott
40 REM for 32-bit machines
50 REM (c) BAU November 1992
60 :
70 ON ERROR PROCerr
80 DIM b% &300,i% &100,err% &200,m% &80,sprite 12,text 12
90 $b%="TASK"
100 x=OPENIN("<File$Dir>.Filing")
110 a$=GET$#x
120 CLOSE#x
130 SYS "Wimp_Initialise",300,!b%,a$
140 SYS "Wimp_OpenTemplate",,"<File$Dir>.Templates"
150 SYS "Wimp_LoadTemplate",,b%,i%,i%+&100,-1,"Info",0
160 SYS "Wimp_CreateWindow",,b% TO infowi%
170 SYS "Wimp_CloseTemplate"
180 PROCmenu
190 icon%=FNiconbar
200 ON ERROR PROCerr
210 REPEAT
220 SYS "Wimp_Poll",1,b% TO e%
230 CASE e% OF
240 WHEN 2:SYS "Wimp_OpenWindow",,b%
250 WHEN 6:PROCmouse(!b%,b%!4,b%!8,b%!12,b%!16,b%!20)
260 WHEN 9:IF !b%=1 SYS "Wimp_CloseDown":END
270 WHEN 17,18:IF b%!16=0 SYS "Wimp_CloseDown":END
280 ENDCASE
290 UNTIL FALSE
300 :
310 DEF PROCmouse(mousex%,mousey%,bs%,handle%,icon%,oldbs%)
320 LOCAL x%,y%,y%
330 CASE bs% OF
340 WHEN 2:IF handle%=-2 SYS "Wimp_CreateMenu",,m%,!b%-64,176
350 WHEN 1,4:IF handle%=-2 PROCopen_dir
360 ENDCASE
370 ENDPROC
380 :
390 DEF FNiconbar
400 LOCALi%
410 b%!0=-2
420 b%!4=-16
430 b%!8=-16
440 b%!12=145
450 b%!16=80
460 b%!20=385884459
470 $sprite="S!FileSys"
480 IF LEN(a$)<11 $text=a$ ELSE $text="FileSys"
490 b%!24=text
500 b%!28=sprite
510 b%!32=6
520 SYS "Wimp_CreateIcon",,b% TO i%
530 =i%
540 :
550 DEF PROCmenu
560 $m%="FileSys"
570 m%!12=&70207
580 m%!16=&50
590 m%!20=40
600 m%!24=0
610 m%!28=0
620 m%!32=infowi%
630 m%!36=&7000019
640 $(m%+40)="Info"
650 m%!52=128
660 m%!56=0
670 m%!60=&7000019
680 $(m%+64)="Quit"
690 ENDPROC
700 :
710 DEF PROCerr
720 SYS "XWimp_CreateMenu",,-1
730 !err%=ERR
740 $(err%+4)=REPORT$+" at line "+STR$ERL+CHR$0
750 SYS "Wimp_ReportError",err%,3,a$TO,j%
760 ENDPROC
770 :
780 DEF PROCopen_dir
790 OSCLI"Filer_OpenDir "+a$
800 ENDPROC
```

Listing 6 – Fsysfiles

```
10 REM >FSysFiles (Kids6)
20 REM Create files for FileSys
30 REM Files created by Nichols Marriott
40 REM for 32-bit machines
50 REM (c) BAU Dec 1992
60 :
70 free%=(HIMEM-END-&8000) AND &FFFFF000
80 DIM q% &100,w% free%
90 REPEAT
100 READ file$
110 IF file$<>"*" THEN
120 PRINT file$
130 READ type%,olen%
140 IF type%=&FFF OR type%=&FFE OR type%=&FEB THEN
150 out%=OPENOUT(file$)
160 REPEAT
170 READ line$
180 IF line$<>"*" BPUT#out%,line$
190 UNTIL line$="*"
200 CLOSE#out%
210 SYS "OS_File",18,file$,type%
220 ELSE
230 line%=0
240 d$=""
250 i%=0
260 WHILE i%<olen%
270 b$=FNc
280 IF b$>="a" AND b$<="z" THEN
290 off%=-EVAL("&"+FNc+FNc)
300 FOR k%=0 TO (ASC(b$)-ASC"a"+2)
310 w%?i%=w%?(i%+off%)
320 i%+=1
330 NEXT
340 ELSE
350 w%?i%=EVAL("&"+b$+FNc)
360 i%+=1
370 ENDIF
380 ENDWHILE
390 SYS "OS_File",10,file$,type%,,w%,w%+olen%
400 ENDIF
410 ENDIF
420 UNTIL file$="*"
430 END
440 :
450 DEF FNc
460 LOCAL c$
470 IF d$="" THEN
480 READ d$,ch$
490 line%+=1
500 $q%=d$
```

```
 510 SYS "OS_CRC",0,q%,q%+LEN(d$),1 TO
crc%
 520 IF crc%<>EVAL("&"+ch$) PRINT"Error
 in data line ";line%:END
 530 ENDIF
 540 c$=LEFT$(d$,1)
 550 d$=MID$(d$,2)
 560 =c$
 570 :
 580 DATA "!Boot",&FEB,&38
 590 DATA IconSprites <Obey$Dir>.!Sprit
es
 600 DATA Set File$Dir <Obey$Dir>
 610 DATA *
 620 DATA "!Run",&FEB,&70
 630 DATA WimpSlot -min 10K -max 10K
 640 DATA IconSprites <Obey$Dir>.!Sprit
es
 650 DATA Set File$Dir <Obey$Dir>
 660 DATA Run <File$Dir>.!RunImage %*0
 670 DATA *
 680 DATA "!Sprites",&FF9,&3F0
 690 DATA 0100000010a04F4030000E4,D91
 700 DATA a042166696C65737973a170,7431
 710 DATA 006e1Cb0C07a282Ca2C0802,772A
 720 DATA 00000Ce14e1Bk0Ex1Bz35z5,7C63
 730 DATA 1b8A5055555555a04d07j0D,8312
 740 DATA 55b1CCCCCCCCa04d07h0Dd,E922
 750 DATA 1C55CCa04c06d27BBBBBBx1,AF3C
 760 DATA Cz38z54c39z54z70zC4cE0w,3358
 770 DATA FC000000a04d07j0Dv19z31,C826
 780 DATA z4Dz69z85zA1fBDF0FFFFFF,FFC3
 790 DATA FFa04d07j0DFFy1Cy1Cz38z,9ED7
 800 DATA 54z70z8CzA8zC4zE0aFC000,D4A3
 810 DATA 000a04d07j0Dv19z31f4DFF,E198
 820 DATA FF,92B3
 830 DATA "Filing",&FFF,&9
 840 DATA printer:
 850 DATA *
 860 DATA "Templates",&FEC,&204
 870 DATA FFFFFFFF0000000a04c072,B37F
 880 DATA Ca0DD801000001a15496E66,E808
 890 DATA 6F0D10A0E35BFEFFEBb243A,FF20
 900 DATA a1854a1CA40300002802h36,5825
 910 DATA 28070000120003840702070,2E60
 920 DATA 10C0Ee19FCa5805d5A3Db4D,92EE
 930 DATA 30d54b6C78a60b7813a7909,8A28
 940 DATA a7DA4a4C34a8954a5864a91,DCA9
 950 DATA 3D3000B74F4B0D7469746C6,E636
 960 DATA 5643E0DFE9AaA1CCaA966a7,B723
 970 DATA 4a57FF3D6100078Be4428aB,F25
 980 DATA Db2098e20C8e2093m20b58b,E76F
 990 DATA 4094e40A8m4030e6060e60C,80D7
1000 DATA 1eA41EaF93EaFDD0aB1b88F,5F7C
1010 DATA 8aB9390000174E616D653A0,4648
1020 DATA DdA00EaF29Ce20C4e205075,F938
1030 DATA 72706F73a23aC0b4468e409,A27F
1040 DATA 0e40417574686F723A0Df40,E0F6
1050 DATA 38e60b80b6056657273696F,6494
1060 DATA 6Ec4041626F757420746869,5EB1
1070 DATA 732050726F6772616D0D466,B6B3
1080 DATA 96C655379730D4578747261,C520
1090 DATA 2066696C696E67207379737,8C74
1100 DATA 4656D730DA9204E6963686F,4CD4
1110 DATA 6C6173204D617272696F747,EB1D
1120 DATA 420313939320D312E30302C,4077
1130 DATA 20323420466562727561727,54F5
1140 DATA 9c170D,606A
1150 DATA *
```

Listing 7 – Scroll32

```
  10 REM >Scroll1 (Kids7)
  20 REM by Govind Kharbanda
  30 REM for 32-bit machines
  40 REM (c) BAU Dec 1991
  50 :
  60 MODE8:o=OPENIN("tf"):VDU5:a=0:REPE
AT:l$=CHR$(BGET#o):GCOL1:LINE1279,500,12
79,500+200*SINa:GCOL2:CIRCLE FILL1279,50
0+200*SQRABSCOSa,4:CIRCLE FILL1279,500-2
00*SQRABSCOSa,4:MOVE1269,500+200*SINa:GC
OL(a*100)MOD3+1:VDU47:GCOL(a*5)MOD3+1:MO
VE1259,800:PRINTl$:a+=RAD2:WAIT:RECTANGL
E FILL0,282,1279,424 TO -4,282:RECTANGLE
 FILL0,774,1279,26 TO -16,774:UNTILEOF#o
:CLOSE#o:VDU4
```

MORE IFS CODES FOR IFS2 FROM ✻INFO

```
ZigZag
 0 -5 0 5 10
 89% -0.63 -0.61 -0.55 0.66 3.84 1.28
 11% -0.04 0.44 0.21 0.04 2.07 8.33
Tree 2
 0 -1/4 0 1/4 1/2
 5% 0 0 0 1/2 0 0.0
 40% 0.42 -0.42 0.42 0.42 0 0.2
 40% 0.42 0.42 -0.42 0.42 0 0.2
 15% 0.10 0 0 0.10 0 0.2
 15% 0.10 0 0 0.10 0 0.2
Tree
 1 -1/2 0 1/2 1
 30% 0.60 0.60 30.00 30.00 0 0.40
 30% 0.60 0.60 -30.00 -30.00 0 0.40
 20% 0.50 0.50 -15.00 -15.00 0 0.40
 20% 0 0.42 0 0 0 0
Swirl
 0 -5 0 5 10
 91% 0.75 -0.46 0.41 0.89 1.46 0.69
 9% -0.42 -0.07 -0.18 -0.22 3.81 6.74
Spiral of spirals
 0 -6 -1 6 11
 90% 0.79 -0.42 0.24 0.86 1.76 1.41
 5% -0.12 0.26 0.15 0.05 -6.72 1.38
 5% 0.18 -0.14 0.09 0.18 6.09 1.57
Snowflake
 1 -1/4 -1/4 5/4 5/4
 = 1/3 1/3 0 0 1/3 2/3
 = 1/3 1/3 0 0 0 1/2
 = 1/3 1/3 0 0 2/3 1/2
 = 1/3 1/3 0 0 0 1/6
 = 1/3 1/3 0 0 2/3 1/6
 = 1/3 1/3 0 0 1/3 0
 = 1/3 1/3 0 0 1/3 1/3
Sierpinski Gasket
 0 0 0 1 1
 = 1/2 0 0 1/2 1/4 0
 = 1/2 0 0 1/2 0 1/2
 = 1/2 0 0 1/2 1/2 1/2
Sierpinski Carpet
 0 0 0 1 1
 = 1/3 0 0 1/3 0 0
 = 1/3 0 0 1/3 1/3 0
 = 1/3 0 0 1/3 2/3 0
 = 1/3 0 0 1/3 0 1/3
 = 1/3 0 0 1/3 2/3 1/3
 = 1/3 0 0 1/3 0 2/3
 = 1/3 0 0 1/3 1/3 2/3
 = 1/3 0 0 1/3 2/3 2/3
Pythagorus triangle
 1 -2 0 2 4
 = 0.707 0.707 45.00 45.00 1/4 5/4
 = 0.707 0.707 -45.00 -45.00 -1/4 5/4
Leaf
 0 0 0 1 1
 = 0.60 0 0 0.60 0.18 0.36
 = 0.60 0 0 0.60 0.18 0.12
 = 0.40 0.30 -0.3 0.40 0.27 0.36
 = 0.40 -0.30 0.3 0.40 0.27 0.09
Koch 2
 0 -6 -1 6 11
 15% 0.31 0 0 0.29 4.12 1.60
 25% 0.19 -0.21 0.65 0.09 -0.69 5.98
 25% 0.19 0.21 -0.65 0.09 0.67 5.96
 15% 0.31 0 0 0.29 -4.14 1.60
 20% 0.38 0 0 -0.29 -0.01 2.94
Koch curve
 1 0 -1/2 1 1/2
 = 1/3 1/3 0 0 0 0
 = 1/3 1/3 -60.00 -60.00 1/2 0.2887
 = 1/3 1/3 60.00 60.00 1/3 0
 = 1/3 1/3 0 0 2/3 0
Floor
 0 -8 -3 8 13
 = 0 -1/2 1/2 0 -1.73 3.37
 = 1/2 0.0 0.0 1/2 -0.03 5.01
 = 0 1/2 -1/2 0 1.62 3.31
Fern
 1 -5 0 5 11
 2% 0 0.16 0 0 0 0
 70% 0.85 0.85 -2.50 -2.50 0 1.60
 14% 0.30 0.30 49.00 49.00 0 1.60
 14% 0.30 0.37 120.00 -50.00 0 0.44
Dragon
 0 -6 -1 6 11
 79% 0.82 0.28 -0.21 0.86 -1.88 -0.11
 21% 0.09 0.52 -0.46 -0.38 0.79 8.10
Crystal
 0 -5 0 5 10
 75% 0.70 -0.48 -0.39 -0.66 2.15 10.31
 25% 0.09 -0.44 0.52 -0.09 4.29 2.93
Coral
 0 -5 0 5 10
 40% 0.31 -0.53 -0.46 -0.29 5.40 8.66
 15% 0.31 -0.08 0.15 -0.45 -1.30 4.15
 45% 0 0.55 0.69 -0.20 -4.89 7.27
Bush (tree)
 1 -1/2 0 1/2 1
 = 0 0.53 0 0 0 0
 = 1/2 1/2 30.00 30.00 0 1/2
 = 1/2 1/2 -30.00 -30.00 0 1/2
 = 1/2 1/2 0 0 0 0
Binary
 0 -5 0 5 10
 = 1/2 0.0 0.0 1/2 -2.56 0
 = 1/2 0.0 0.0 1/2 2.44 0
 = 0 -1/2 1/2 0 4.87 7.56
```

NOTES

Your RISCOS Compliant Acorn Dealer!

QuickTile £25+VAT

(TilerII) Up until now it has only been possible to print posters from Draw and Sprite files. Now with QuickTile you can create posters from ANY RISCOS application eg Impression, Squirrel, Pipedream etc. The user simply enters the size of the source document, selects the required poster size and then selects PRINT directly from the RISCOS application! QuickTile does the rest, printing each tile with crop marks and references allowing each tile to be trimmed and pieced together.



TopicArt

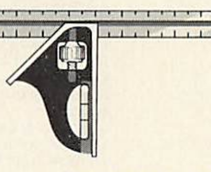
A new form of clip art comprising of single discs containing approximately 50 hand drawn high quality draw format clip art images, each on a single subject. Site and area licences are available, please ring for details.



TopicArt9 - Dinosaurs

Subjects available
1 - General
2 - Transport
3 - Costumes
4 - Entertainment
5 - Bugs 2 Slugs
6 - Road Signs
7 - Sports Equip
8 - Sports Figures
9 - Dinosaurs
10 - Symbols
11 - Tools

£8 +VAT per disc.



TopicArt11 - Tools



TopicArt4 Entertainment

11 TopicArt subjects are available now. Please specify when ordering.

TopicArt8 Sports Figures

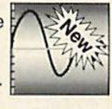
Buy 4 TopicArt discs get one free

Special Xmas TopicArt
3 Discs filled with Xmas goodies
£20 + VAT

MegaUtils £10+VAT

A set of genuinely useful RISCOS utilities !AddrBook An easy to use address book.
!Diary A place to store your birthdays etc.
!CleanUp A hot key util for redrawing windows.
!Disable Prevents you from deleting any file.
!DOSForm A multi-tasking DOS 720k formatter.
!FileMon Displays information about any file.
!LineClock A desktop clock.
!MegaUtils provides a window organiser, key short-cuts to open/close filer windows, set copy and wipe options, set filetypes, quick loading of basic programs, caret flasher, selection of mouse speed, automatic opening of applications, mouse hider, caret grabbing.
!QuickMode Select modes with ease.
!QuickRun An application loader.
!ScrGrab Saves the screen display to a Sprite.

QuickSound £10+VAT



QuickSound allows you to load, play, convert & resave existing sound samples. Armadeus, Tracker, raw data formats are supported. Samples can also be converted into modules for use with the RISCOS sound system, Rhapsody etc or alternatively converted into stand alone Utility sample modules which when called, via a star command, automatically plays the sample and then removes itself completely from memory (this feature is not available on any other sound package). Special effects can be applied to samples including Reverse, Echo, Max Vol, alter replay rate and resample at other frequencies. On screen VU meter included. QuickSound is a perfect compliment to the Oak Sound Recorder.

Hardware & Books (All prices exclude VAT)

New Pocket Book

Acorn Pocket Book £212

New A3010 Series

Family Solution £424
No monitor required, connects to standard TV. 1Mb RAM, Floppy drive, 2 joystick ports, fast processor, soft/w

Learning Curve Sys £680
As above with 2Mb RAM, Standard Monitor & Learning Curve software.

New A3020 Series

Floppy Disc System £749
As A3010 less Learning Curve software & joystick ports. Includes Standard Monitor, 2Mb RAM & can be upgraded to Econet/Ethernet.

60Mb Hard Disc Sys £899
As above with 60Mb Hard disc.

Add £50 to above A3020 system prices for MultiScan Monitor.

New A4000 Series

Home Office System £999
3 Box design with 2Mb RAM, Floppy Drive, 80Mb hard disc, Standard Monitor, EasiWriter2, Junior Database

80Mb Hard Disc Sys £949
As above without additional software

Add £50 to above A4000 system prices for MultiScan Monitor.

New A5000 Series

Learning Curve Sys £1445
2Mb RAM, 80Mb HD, MultiScan Mon, Learning Curve Software.

80Mb Hard Disc Sys £1399
As above without Learning Curve

120Mb Hard Disc Sys £1599
As above with 4Mb RAM &120Mb HD

Add £212 to above prices for Acorn JP-150 Ink Jet Printer

New A4 Portable

A4 2MFD Portable £1399
2Mb RAM, 2Mb Floppy, LCD Screen

A4 4MHD Portable £1699
4Mb RAM, 60Mb HD, 2Mb Floppy Disc, LCD Screen, PC Emulator.

RAM Upgrades

A3000 2/4Mb RAM	£45/£129
A3010 1Mb RAM	£45
A3020/A4000 2Mb RAM	£85
A5000 2Mb RAM	£85
A400 1Mb RAM	£35
A400 2Mb RAM	£65
A400 3Mb RAM	£100
A540 4Mb RAM	£245

Printers

Canon BJ-10ex	£190
Canon BJ-10 Turbo	£229
Canon BJ-10 ASF	£49
Canon BJ-20 (Inc ASF)	£289
Canon BJ-300	£329
Canon BJ-300 ASF	£99
Canon BJ-330	£399
Canon BJC-800 Turbo	£1895
Citizen Swift 24e	£235
Citizen Swift 24 ASF	£75
HP DeskJet 500	£329
HP DeskJet 500C	£479
Panasonic KXP-1123	£159
Star LC-200	£175
Star LC24-200 Colour	£239
LaserDirect HiRes4	£949
LaserDirect HiRes8	£1319
LD HiRes4 Card	£349

Includes cable & driver

Upgrades

5.25" Disc Buffer	£39
ARM3	£185
A3000 Dual Pod Exp	£55
Canon BJ Turbo Driver	£42
Canon BJC Turbo Driver	£99
DeltaCat Joystick	£29
Dongle Dangle	£7
FaxPack (CC)	£279
Hawk V9 Video Dig	£199
I/O Expansion Card	£79
Joystick I/F (All M/C's)	£30
Joystick for above	£10
Midi Expansion Card	£65
Micro Mouse (Clares)	£29
Serial Upgrade A3000	£17
User/Midi Card A3000	£46
VIDC Enhancer	£27
Vision Mono Digitiser int	£49
Vision Mono Digitiser ext	£62
For Colour Digitiser add	£30

Monitors

Acorn Standard Colour	£199
Acorn MultiScan	£275
EIZO 9060S FlexScan	£429
Microvitec CubScan	£399
Philips CM8833 II	£189
Taxan 795A	£439

Scanners

ScanLight 256	£199
ScanLight A4	£289
ScanLight A4+Feeder	£389
ScanLight Professional	£595
SCSI Card for above	£139

RISCOS 3 £42

Now in Stock!

Acorn Books

A3000 Technical Guide	£29.95
A540 Technical Guide	£65.00
A5000 Technical Guide	£65.00
BBC Basic Guide	£19.95
RISCOS2 PRM's	£79.00
RISCOS3 PRM's	TBA
RISCOS2 Style Guide	£9.95
1st Word+ Manual	£10.00
Desktop Dev Env Guide	£25.00
DTP Manual	£10.00
Assembler Manual	£25.00
ANSI C v4 Manual	£25.00

Other Books

Archi Game Maker's Manual	£14.95
Archi Assembly Lang Manual	£14.95
Archi Operating System Guide	£14.95
Begin. Guide to WMP Prog.	£12.95
Budget DTP	£12.95
DTP on the Archimedes	£12.95
Mastering 1st Word+	£13.95
First Impressions	£35.00
Good Impressions	£30.00

Ink Cart/Ribbons

BJ-10/20 Ink Cartridge	£16
BJ-300 Ink Cartridge	£11
DJ-500 Bk Hi-Cap Cart.	£21
DJ-500C Colour Cart.	£22
Swift24 Mono/Colour	£5/£15

Ordering by Telephone

Please specify the goods you require and for which computer. Please have your credit/debit card ready. We will require the cardholders name, address, delivery address if different and the expiry date of the card.

Ordering by Post

Please specify the goods you require and for which computer in writing including your telephone number & delivery address. Send complete with a signed cheque/postal order or alternatively for credit/debit cards, the card number, cardholders name, address, and expiry date. IMPORTANT - Please write your name, address & credit card details in BLOCK CAPITALS to avoid confusion.

Where to Find Us

From the M63 Junction 12 roundabout follow signs to Cheadle A560 passing the glass pyramid. At the 2nd set of traffic lights turn left onto Brinksway. Turn next left onto Chester St and immediately left again onto Ford St. Enter on-site car park via Red Gates on the right hand side.

Terms

UK residents add 17.5% VAT to all prices except books. Carriage is free (except books, paper & large software applications) on mainland UK, elsewhere at cost. Only Credit/Debit cards accepted for overseas orders. Prices and manufacturers specifications subject to change without notifcation. Goods offered subject to being unsold and/or available. Goods not offered on trial basis. Restocking fee on non-defective returns.



Desktop Projects Ltd



Authorised Acorn Dealer (Tel: 061-474 0778, Fax: 061-474 0781)
Unit 2A, Heapriding Business Park, Ford St, Stockport, Cheshire. SK3 0BT

Opening Hours Monday-Saturday 10.00 to 18.00

QuickShow £25+VAT



QuickShow is an easy to use slide show presentation and video titling package. It allows you to create a sequence of frames containing text of any colour with drop shadows, outline shadows and rubout boxes using outline fonts. Sprites can also be included in frames and positioned and resized as necessary. Once several screens have been created they can be linked together with the sequencer which allows you to fade each screen out and in with the many fades provided with the package. Completed sequences can be converted to a stand alone application which when run, automatically 'Shows' the sequence without using !QuickShow.

Flopticals / CD-ROM / Tape Streamers

A3000/A5000/A300/A400 External Floptical (without SCSI card) **£399**

A5000 Internal Floptical kit (with Econet SCSI card) **£359**

Floptical floppies (20Mb) **£20**
Each of the above systems comes complete with one floptical floppy.

Cumana CD-ROM Combi Pack **£699**
Comprises CD-ROM drive, SCSI card, stereo speakers, 6 RISCOS CD-ROM titles, The Hutchinson Encyclopedia, Dictionary of the Living World, Revelation 2, The Illustrated Holy Bible, The Illustrated Works of Shakespeare, Sherlock Holmes on a Disc, !CDPlayer, 3 caddies, etc.

150Mb Tape Streamer (without SCSI card) **£399**
Our Tape Streamers are housed in attractive case with power supply and fan and are suitable for any Acorn RISCOS computer (however they must be used with an Acorn compliant SCSI card). They come complete with one data cartridge and Morley's SAS (Safe and Sound) tape backup software.

Hard Discs

IDE

The following are complete HardDisc Systems comprising of IDE disc controller, HardDisc, mounting brackets, cables, utilities disc and manual.

Archimedes Internal	
40Mb 17ms	£210
105Mb 17ms Cache	£305
125Mb 16ms Cache	£359
200Mb 13ms Cache	£499
330Mb 12ms Cache	£749
520Mb 12ms Cache	£999
A5000 Exchange Drives	
120Mb 16ms Cache	£200
200Mb 13ms Cache	£350
A3000/Archi External	
40Mb 17ms	£299
105Mb 17ms Cache	£399
125Mb 16ms Cache	£455
200Mb 13ms Cache	£599
330Mb 12ms Cache	£849
520Mb 12ms Cache	£1089
A3000 Hard Cards	
30Mb Internal	£249
45Mb External	£399
100Mb External	£499
IDE Hard Disc Interface	
IDE Controller	£69

Please ring for further details.



SCSI

The following are complete SCSI HardDisc Systems comprising of a Morley SCSI interface, HardDisc, mounting brackets, cables, utilities disc and manual.

Archimedes Internal	
105Mb 18ms Cache	£429
180Mb 18ms Cache	£599
330Mb 12ms Cache	£899
520Mb 12ms Cache	£1049
A3000/A300/A400 External	
105Mb 18ms Cache	£509
180Mb 18ms Cache	£699
330Mb 12ms Cache	£979
520Mb 12ms Cache	£1149
Removable Hard Discs	
44Mb (Inc one cartridge)	£499
44Mb Cartridge	£55
88Mb (Inc one cartridge)	£599
88Mb Cartridge	£99
The above are external units	
SCSI Controller Cards	
Morley Uncached	£139
Morley Cached	£189

Archimedes, A3000, A5000 Software

Applications

3D Construction Kit (Domark)	£38
ABC Compiler (Oak)	£77
Alphabase (Clares)	£37
Ancestry (Minerva)	£59
ANSI C v.3 (Acorn)	£125
Arc DFS (Dabs)	£22
ArcComm2 (Logotron)	£52
ArcLight (Ace)	£40
ArcTerm 7 (Serial Port)	£62
Arcticulate (4D)	£20
Arctist (4D)	£20
Armadeus (Clares)	£59
Artisan 2 (Clares)	£43
Art Works (CC) Now in Stock	**£149**
Atelier (Minerva)	£69
Autosketch v2 (Autodesk)	£65
Cable News (Lingenuity)	£165
CADet (Minerva)	£139
Chameleon 2 (4Mation)	£35
Compression (CC)	£39
Control Panel (Lingenuity)	£14
DataVision (Silicon)	£110
Desktop Assembler (Acorn)	£125
Desktop C (Acorn)	£185
Desktop Office (Minerva)	£95
Desktop Publisher (Acorn)	£125
Desktop Thesaurus (RISC Dev)	**£19**
Draw Print-Plot (Oak)	£39
Easiword (Minerva)	£29
Easy Writer II (Icon Tech)	£126
Einstein (Ace)	£106
Equasor (CC)	£39
Euclid 2 (Ace)	£55
Eureka (Longman)	**£109**
Film-Maker (Silicon)	£71
Financial Accountant (Silicon)	£203
First Word Plus v2 (Acorn)	£67
Font FX (DataStore)	£9
Font Starter Pack (Acorn)	£35
Gammaplot (Minerva)	£36
Genesis 2 (Oak Solutions)	£109
Graphbox v2 (Minerva)	£57
Graphbox Pro (Minerva)	£109
Hard Disc Companion II(Beebug)	£45
Hearsay II (Beebug)	£70
Hotlink Presenter (Lingenuity)	£41
Home Accounts (Minerva)	£34
Illusionist (Clares)	£76
Impression v2 (CC)	**£125**
Impression Junior (CC)	£75
Impression Bus Supp (CC)	£39
Inter-Chart (CC)	£20
Inter-Sheet II (CC)	£30
Inter-Word (CC)	£30
Investigator v2 (Serial Port)	£22
ISO Pascal Rel.2 (Acorn)	£83
Mailshot (Minerva)	£29
MasterFile II (Beebug)	£20
MegaUtils (Desktop Projects)	**£10**
Midnight Express (Mid. Graph.)	**£49**
Mogul (Ace)	£20
Multi FS (Arxe Systems)	£27
Multistore v2 (Minerva)	£219
Notate (Longman)	£54
Office Tools (Silicon)	£276
Ovation (Beebug)	£95
PC Access (Minerva)	£29
PCB (Oak)	£99
PC Emulator (Acorn)	£95
Pin Point (Logotron)	£79
PipeDream 4 (Colton)	£179
Poster (4Mation)	£75
Presentation System (Silicon)	£61
Presenter 2 Hotlink (Lingenuity)	£33
Presenter GTi (Ling)	£66
Printer JX, PJ, CA (ACE)	£13
Pro Artisan (Clares)	£75
Realtime Solids Modeller (Sil)	£99
Render Bender v2 (Clares)	£99
Revelation II (Logotron)	£110
Rhapsody v2 (Clares)	£45
RISCBasic (Silicon)	£112
RISCType (CIS)	£16
Schema (Clares)	£96
SigmaSheet (Minerva)	£38
ShapeFX (Datastore)	£9
ShowPage (CC)	£130
SmArt (4Mation)	£50
SmArtFiler (4Mation)	£32
Snippet (4Mation)	£26
Solid CAD (Sil Vis)	£115
Speech! (Superior)	£15
Splice (Ace)	£27
Squirrel Database (Dig Serv)	**£125**
Super-Dump (Silicon)	£21
Super-Plot (Silicon)	£28
Studio 24+ (EMR)	£150
Tiler (Desktop Projects)	**£10**
Titler (Clares)	**£120**
Toolkit Plus (Clares)	£36
Tracker (Serial Port)	£37
Tween (Ace)	£27
TypeStudio (Beebug)	**£43**
Vector (4Mation)	**£75**
Vox Box (Clares)	£47
Worra CAD (Oak)	£83

Games

Aggressor (Atomic)	£18
Air Supremacy (Superior)	£17
Alien Invasion (Dabs)	£14
Aliped (Dabs)	£12
Ballarena (Eterna)	£14
Bambuzle (Arxe Systems)	£19
Battle Tank (Minerva)	£13
Black Angel (4D)	**£26**
Blaston (Eterna)	£15
Blitz (Arxe Systems)	£17
Blowpipe (Eclipse)	£15
Bobby Blockhead (Atomic)	£18
Boogie Buggy (4D)	£20
Break 147 & Superpool (4D)	£26
Bug Hunt, MoonDash (Min)	£13
Bug Hunt in Space (Minerva)	£13
Cartoon Line (Eterna)	£19
Casino (Minerva)	£18
Cataclysm (4D)	£20
Caverns (Minerva)	£14
Chess 3D (Micro Power)	£14
Chocks Away 2 (4D)	£20
Chocks Away Extra Miss(4D)	£15
Chocks 2 Compendium (4D)	£30
Chopper Force (4D)	£23
Chuck Rock (Krisalis)	£19
Colony Rescue (Dabs)	£12
Conqueror (Superior)	£18
Cyber Chess (4D)	**£39**
Dreadnoughts (Turcan)	**£26**
Drop Ship (4D)	£16
Dungeon (4D)	**£Call**
Elite (Hybrid)	£32
Enter the Realm (4D)	£20
E-Type Compendium (4D)	£20
Family Favourites (Minerva)	£15
Fire Ball 2 Xtra (CIS)	£12
Galactic Dan (4D)	**£20**
GODS (Krisalis)	**£19**
Gribbly's Day Out (Coin-Age)	**£19**
Grievous Bodily 'ARM (4D)	£20
Guile (Dream)	**£Call**
HoverBod (Minerva)	£13
Holed Out Compendium (4D)	£20
Hostages (Superior)	£14
Ibix the Viking (Minerva)	£14
Iron Lord (Cygnus)	£14
James Pond (Krisalis)	**£19**
Jet Fighter (Minerva)	£13
Karma (Periscope)	£22
Kerbang (Eterna)	£15
Krisalis Collection	**£22**
Last Ninja (Superior)	**£19**
Legend of the Lost Temp (Eter.)	**£19**
Lemmings (Krisalis)	£19
Loopz (Audiogenic)	£18
Lotus Turbo Challenge II (Kris)	**£19**
Maddingly Hall (Minerva)	£13
Mad Prof Mariarty (Krisalis)	£15
Mag Scrolls Collection 1	£26
Mah-Jong Patience (CIS)	£15
Mah-Jong The Game (CIS)	£18
Man United Europe (Krisalis)	£19
Master Break (Superior)	£15
Micro Drive World Edition (CIS)	£24
MIG 29 Super Fulcrum (Domark)	£32
Minotaur (Minerva)	£14
Missile Control (Minerva)	£14
Nebulus (Krisalis)	**£19**
Nevryon (4D)	£15
Oh No More Lemmings (Kris)	**£16**
Omar Sharif's Bridge (Krisalis)	**£22**
Orion (Minerva)	£14
Pacmania (Domark)	£17
Pandora's Box (4D)	£20
Pesky Muskrats (Coin-Age)	**£19**
PipeMania (Ent. Int.)	£18
Play It Again Sam1 (Superior)	**£20**
Poizone (Eterna)	£14
Populus (Krisalis)	**£22**
Powerband (4D)	£20
Quest for Gold (Krisalis)	**£19**
Repton 3 (Superior)	£15
Rockfall (Eterna)	£16
Rotor (Arcana)	£19
Real McCoy 1/2 (4D) (ea.)	£24
Saloon Cars (4D)	£20
Saloon Cars Deluxe (4D)	**£28**
Saloon Cars Del Extra Courses	**£16**
Scorpius (Arxe)	**£Call**
Sim City (Krisalis)	**£Call**
Sporting Triangles (CDS)	£19
Starch (Dabs press)	£12
Superior Golf (Superior)	£15
Sup Golf Extra Courses (Superior)	£14
SWIV (Krisalis)	**£19**
ThunderMonk (Minerva)	£14
Tiles (Brain Games)	**£16**
Top Banana (HEX)	£19
Tower Of Babel (Cygnus)	£18
Trivial Pursuit (Domark)	£22
Twin World (Cygnus)	£14
Waterloo (Turcan)	**£19**
Wonderland (Virgin)	£25
X-FIRE (4D)	**£20**
Zarch (Superior)	£15

Education

Adv. Playground 5+ (Storm)	£17
Amazing Ollie 4+ (Storm)	£14
Coffee 9+ (Storm)	£28
Concept Designer (Logotron)	£23
Converta-Key	£15
Crossword+ 8+	£19
Data Word (Triple R)	£15
Desktop Folio (ESM)	£89
Farmer Giles 2 (CTS)	£17
First Words & Pictures (Chk)	£26
Flight Path 9+ (Storm)	£28
Freddy Teddy (Topologika)	£19
Freddy Teddy's Adv (Topol.)	£17
Fun & Games 5-9	£18
Fun School 2 (Database)	£15
Fun School 3 (Database)	**£18**
Fun School 4 (Database)	**£18**
(Please spec. age group <5, 5-7, >7)	
Giant Killer (Topologika)	£17
Giant Killer Support (Top)	£14
History Costume Pk (Mic St)	£17
House of Numbers (Chalk)	£19
Hyperbook Reader (Logotron)	£48
Hyperbook Lib (Logotron)	£110
Junior Database (Iota)	£40
Kiddicad (Oak Sol.)	£83
Letters and Pictures (Chalk)	£18
Logo (Logotron)	£60
Magpie (Logotron)	**£45**
Maps & Landsc. 1/2 (Chk) ea.	£19
Money Matters (Triple R)	£20
Numbers and Pictures (Chalk)	£18
Numerator (Logotron)	£60
Numerator Chaos (Logotron)	£19
Ollie Octupus Sk Pad (Storm)	£14
Pendown (Logotron)	£50
Pendown Fonts (Logotron)	£17
PIPP (CIS)	£30
Picture Book (Triple R)	£20
Pin Point Junior (Logotron)	**£24**
Pirate (Chalk)	£18
Prime Art (Minerva)	£69
Puncman 1-2,3-4,5-7 (Chalk) ea.	£18
Reversals (Chalk)	£18
Search & Rescue 9+	£28
Spellbook 4-9 (Soft Stuff (SS))	£19
Star (Logotron)	£16
Target Maths (Triple R)	£20
Things to do with No's (SS)	£19
Things to do with Words (SS)	£19
Words and Pictures (Chalk)	£18
World Scape (Eclipse)	£15
Please call for titles not listed	



Registered Squirrel Dealer

Desktop Projects Ltd

Please contact us if you are offered a better price elsewhere, we will do our best to match it. We operate the Acorn Teachers Scheme. This document was produced entirely on the Archimedes using Impression, ArtWorks, Draw & Paint.

Tel: 061-474 0778









DEC 92

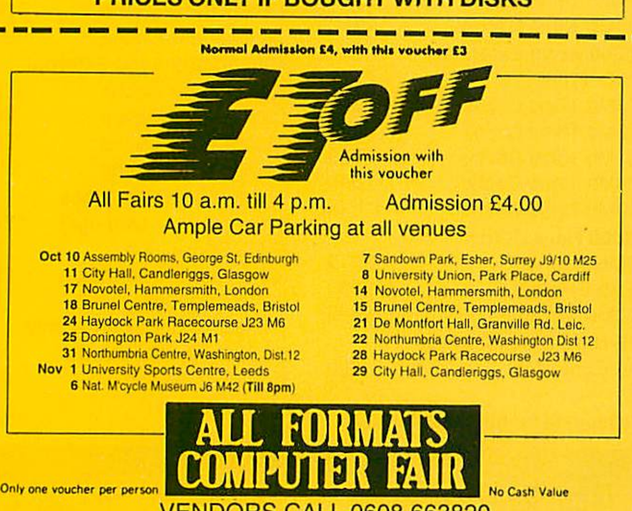
DISK STORAGE BOXES

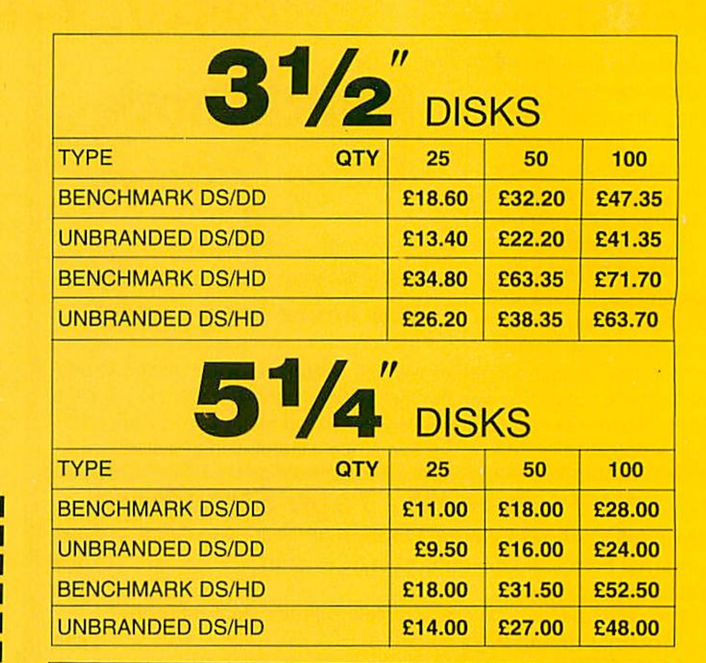
3½" 10 CAPACITY **QTY 5**	£4.50
3½" 50 CAPACITY LOCKABLE	£3.70
3½" 100 CAPACITY LOCKABLE	£4.70
5¼" 10 CAPACITY **QTY 5**	£4.99
5¼" 50 CAPACITY LOCKABLE	£3.70
5¼" 100 CAPACITY LOCKABLE	£4.70
200 LOCKABLE DRAWER TYPE	£18.00

ACCESSORIES

IBM PRINTER CABLE 1.8 MTR (ALSO FOR ATARI AND AMIGA)	£4.90
25 PIN M-M AND M-F 1.8 MTR	£4.90
36 PIN CENTRONIC M-M 1.8 MTR	£4.90

PRICES ONLY IF BOUGHT WITH DISKS





3½" DISKS

TYPE QTY	25	50	100
BENCHMARK DS/DD	£18.60	£32.20	£47.35
UNBRANDED DS/DD	£13.40	£22.20	£41.35
BENCHMARK DS/HD	£34.80	£63.35	£71.70
UNBRANDED DS/HD	£26.20	£38.35	£63.70

5¼" DISKS

TYPE QTY	25	50	100
BENCHMARK DS/DD	£11.00	£18.00	£28.00
UNBRANDED DS/DD	£9.50	£16.00	£24.00
BENCHMARK DS/HD	£18.00	£31.50	£52.50
UNBRANDED DS/HD	£14.00	£27.00	£48.00

ALL DISKS 100% CERTIFIED ERROR FREE.
3½" INC. LABELS. 5¼" INC. ENVELOPE AND LABEL SET.



ALL PRICES INCLUDE VAT & P&P. UK ORDERS ONLY

Cheques and Postal Orders to:

24 HOUR ORDERLINE 0597 851 784

Manor Court Supplies Ltd
Telephone: 0597 851 792 Fax No: 0597 851 416
Dept AU12, Glen Celyn House, Penybont,
Llandrindod Wells, Powys, LD1 5SY

EDUCATION AND GOVERNMENT ORDERS WELCOME

The Primary LOGO Pack

NOW FOR ARCHIMEDES

The Primary LOGO Pack is a set of materials and software for use with Logotron LOGO, to help schools take LOGO on board. The Advisory Unit has been involved with the use of LOGO since it first appeared in this country. This pack builds on the experiences of teachers in the Chiltern Region, and includes materials developed through running in-service courses over a number of years. In addition to helping teachers to learn LOGO, it addresses the practical problems, such as printing pictures, saving and loading procedures and using the floor turtle, that can cause so much trouble in the classroom. This pack is £30.

Other Titles

Archimedes software in our catalogue includes Ecosoft for data analysis, Mosaic for tile pattern design and the Quest database program.

To Order and for more information contact:

The Advisory Unit for Microtechnology in Education
Wheathampstead Education Centre
Butterfield Road
Wheathampstead
Herts AL4 8PY
Tel: 0582 830274

fc fabis computing

(0283) 42824



SHOWROOM NOW OPEN

Come and try out the NEW A3010 with ***FREE*** game on demonstration NOW

Many special opening offers!!

We also supply all leading brands of **ACORN** hardware & software

38 High Street
Burton-on-Trent
Staffordshire
DE14 1JS

Opening Times
Mon - Sat
10am till 8pm

ACTION REPLAY

Claire Johnson steps through Playback, the package that lets you save every keystroke

Over the last two years as an advisory teacher, I cannot remember the number of times I have demonstrated certain features of packages such as *Draw* and *Paint*. And so I was immediately attracted to software that might allow me to record a series of mouse movements, button clicks and keystrokes and then replay them. The ability to add an associated text commentary opened up the possibility of producing training demonstrations for use both with both teachers and pupils.

Opening the *Playback* package I was pleased to discover a 16-page manual, often a sign that software is easy to use. Installation on to a hard disc was easy – no system problems except for a new font to transfer. Not a difficult task, but why not use a resident Risc OS 3 font?

The disc contains a public domain 'play only' version to allow recordings to be disseminated, so I first tried loading one of the example files. This actually made little sense until a close reading of the manual gave me a description of what the screen should look like: two windows – the control panel and the commentary windows.

The control panel is fairly self-explanatory and looks not unlike a cassette recorder panel with record, play, pause and stop buttons.There is also a counter showing minutes and seconds – recordings of up to an hour are possible – and space to show which recording is being played. Below each button is an indicator light which changes colour at various points during the recording and playback.

I found those initially confusing, but very helpful when I became more familiar with the procedures. It is also possible to use a set of default key presses instead of the control panel – again much more useful during a recording but a keystrip would have been useful for beginners. The default keys can be changed but this seemed to be for more advanced users; and probably unnecessary anyway.

Making a recording was easy. Press Play (or ALT-F9) and all subsequent mouse movements and clicks are recorded, and the indicator light turns red.

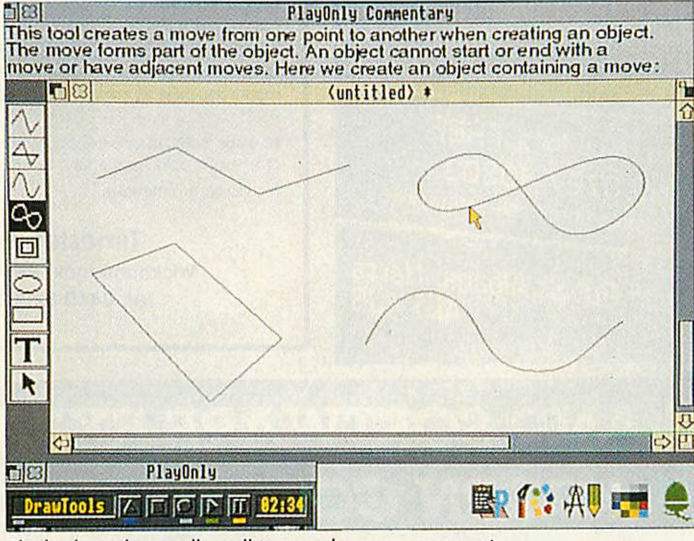
The major problem at this stage is that the software does not record the opening of windows or the screen mode. It isn't possible to presume that a recording of the opening of an application will always produce the window on the screen in the same place each time. Consequently all subsequent mouse movements are usually in the wrong place. The manual does stress the importance of planning your recording, and having the windows open correctly before you start is the most important part of this process. It also explains these problems.

Playing back and extending my recordings was very straightforward and involved only the pressing of play, record and pause – or using the default key presses – and saving a recording obeys standard Risc OS rules.

So to adding a text commentary. Each comment can be three lines long and can be created in *Edit* with ease and dragged onto the commentary window. Play your recording and each time you want to add a new comment press ALT-F10. I had to try this a few time before the commentary was very useful but editing the text file was simple. A useful feature. is that during the fixing of a commentary the next line of text can be visible to aid the addition of comments.

It is possible to load the whole recording into script file format, which converts it into a text file that can be edited. The file shows time, mouse position and which button has been clicked. It also shows commentary positions and the Ascii value of a keypress. Editing the recording in this format took some practice, especially mouse positions, and is only going to be useful for long recordings – in most cases it was quicker to make the recording again.

I can see a great many uses for this software in school computer rooms and for training purposes. Because of the PD version allowing the playback of recordings, *Playback* represents excellent value for money. It was easy to use, the manual was honest about the drawbacks of screen modes and window positions, and I am not aware of any other piece of software that will let me demonstrate how to use all the features of an application quite so well.



Playback works equally well to record mouse movements . . .

PlayOnly.Commentary
Here we select the ellipse object we created earlier. When an object is selected a dotted box is drawn around it.
(untitled) *
We can type text here too!
Text can then be typed and deleted.
PlayOnly
DrawTools
06:34

. . . or sequences of keystrokes

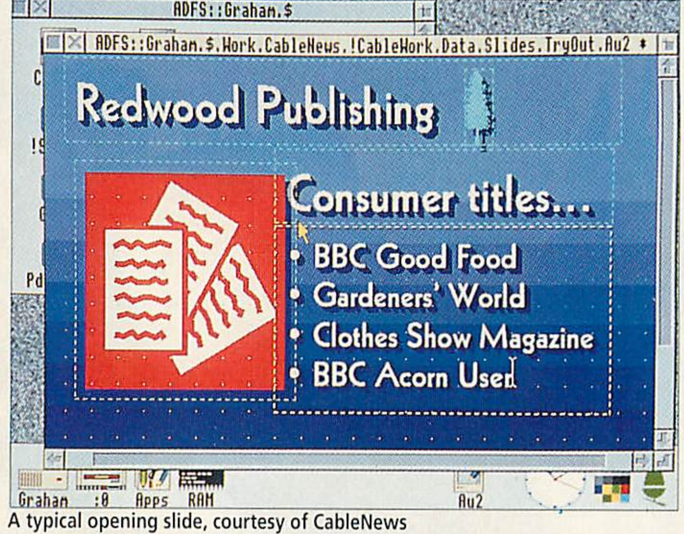
PRODUCT DETAILS

Product: Playback
Supplier: Risc Developments Ltd, 117 Hatfield Road, St Albans, Herts AL1 4JS Tel: (0727) 40303
Price: £19 plus VAT

SHOWING OFF

Graham Bell puts Lingenuity's CableNews through its paces

Lingenuity's *CableNews* is an application for creating and displaying 'slide presentations', though the slides are in this case displayed on a computer screen rather than by using a projector. It comes in two halves; *CableMake* for putting together individual slides and linking them together into sequences, and *CableView* for displaying the sequences.



A typical opening slide, courtesy of CableNews

Each *CableMake* slide is in effect a screen-sized page. Like a DTP page, the slide is created by drawing frames, then importing text, sprites and drawings. Text can be any size, typeface and colour as usual, and again like a DTP package, there is a stylesheet system to make the text setting quicker and more consistent. A number of special effects like backgrounds, borders and shadows can be applied to frames and their contents.

Once the slides are created, they can be linked together into sequences or 'stories', which can then be displayed using *CableView*. And there are various TV-style transition effects, which make the presentation more lively.

INSTALLATION

CableNews comes on three discs in a chunky plastic ring-binder: the system really needs only 400K or so on your hard disc, yet it requires at least 2Mb of memory to run.

When you fire it up, *CableMake* asks whether it can change screen mode, as the system looks very much better in a 256-colour mode.

A new slide can be created with a single click on the *CableMake* icon: the slide is created at full-screen size, irrespective of which mode you are in. This means you have to create the slides in the screen mode that will be used to display them – if you change to a 'bigger' mode, all the frames stay in the bottom left, rather than being scaled to fit.

In fact, much of the detailed operation of *CableMake* is extremely annoying. For example, you can display a grid, but it's cosmetic only – there is no grid lock, so all lining up has to be done by eye. Items imported into frames don't go to the edge of the frame, but have an invisible border. There is no facility for zooming in either, so it's almost impossible to position things accurately or consistently. A display showing the mouse co-ordinates is a poor substitute.

The lack of zoom also means that to see the whole slide means switching between full-screen and a windowed display: thankfully, a single press of F10 is all that's necessary. But the window size toggle doesn't work properly, often leaving half the window off-screen, as do mode changes. Dialogue boxes are inconsistent too: some are okayed when you press RETURN, others are not.

Frames created on the page can be filled with drawings, sprites, text files or text typed at the keyboard. But editing of items placed on a slide is poor, which means you have to do more preparatory work before importing your materials. Drawings cannot be cropped, nor can their original aspect ratio be preserved – except by arduous calculation: the Lock Aspect button simply doesn't work. This is compounded by the fact that an accidental Adjust-drag *anywhere* on the page alters the shape of the selected frame and its contents. Sprites cannot be cropped or rotated – even with Risc OS 3. And editing text! Correcting any spelling error means either deleting back to the mistake and re-typing, or using the menu to export the text to *Edit*, correcting and re-importing. And deleting means using Delete, as *CableMake* ignores the Backspace key.

IN THE SHADOWS

If you persist, some of the graphical features of *CableMake* are extremely impressive. The shadows cast upon the background by drawing

COMPARISONS

CableNews' obvious competition is 'multimedia' packages like *Genesis* and *Magpie*. These can, with minor exceptions, display all the graphical features of *CableNews* – text in a variety of styles, drawings and paintings – and link screens of such information together.

The three fundamental differences are that first, *CableNews'* progression from screen to screen is strictly linear, while the competitors can branch. Second, neither multimedia package has a range of transition effects between screens, which is one of *CableNews'* best features. The third difference is one of organisation: a *CableNews* document is a single slide file, and many such files are linked together to form a presentation. Both *Genesis* and *Magpie* consider a whole presentation as a unit – a binder file – so screens cannot easily be copied from one presentation to another. 628's *Slideshow* application does many of the same things as *CableView*, but is limited to using mode 15, full-screen sprites.

Neither of the multimedia applications offer a DTP-like system of text stylesheets. However, both *Magpie* and *Genesis* are more flexible for text editing, and allow multiple text styles within a frame. They also give better control over illustration sizing (though they don't offer a grid lock for alignment), and already support Replay video, sound files and so on.

Overall, if you only want to show your presentation on screen, then *CableNews* is worth considering. But beware: a few features like the lack of a grid, the inability to vary text style within a frame and the lack of cursor editing make creating a presentation harder than it need be. You can't create a suitable hard copy of your slides. You may decide that the range of transition effects and impressive graphical features like the shadows make it worth putting up with. Conversely, if you are looking for a slide creating package for 35mm or overhead projection, then *CableNews* isn't up to it yet. For more on what additions are planned, see page 150.

and sprite items on the slide are not necessarily solid colours – they may simply darken whatever colour is underneath. You can control the direction and distance of shadows, as well as the colour cast. A limited selection of line and slab borders can be applied around frames (but not to individual frame edges). And a couple have pleasing 3D effects that make the frame stand out like a plinth.

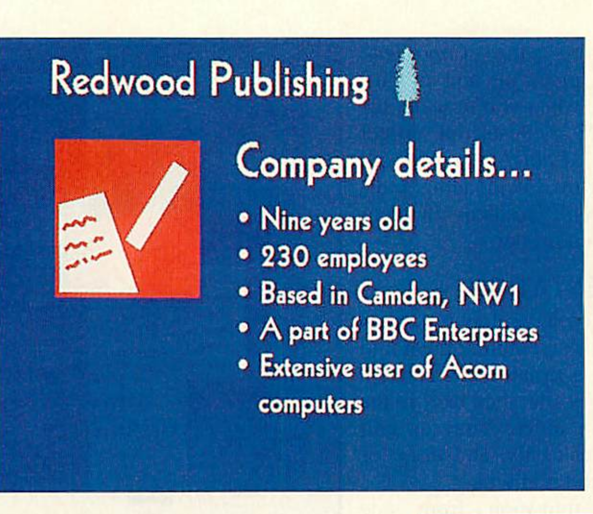
Text shadows are drawn quite differently, and are always solid colours, but the same colour, direction and distance controls exist. Sensibly, one of the preferences you can set is a temporary replacement for Fontmax2 with which you can ensure all the text in your presentation is all anti-aliased. However, text shadows are not anti-aliased in the same way, and text sizes are all specified in the unfamiliar OS units system rather than in points.

You can type text directly into any frame, or import a file from *Edit*. The styling system works a little like a DTP package, so you can set the typeface, size, leading, colour and so on directly, or apply a stylesheet. Stylesheets can be saved separately from the slides, so it is simple to stick to a 'house style'. But all styling is done on a frame-by-frame basis, so you can't, for instance, pick out one word in italic without putting it in a different frame.

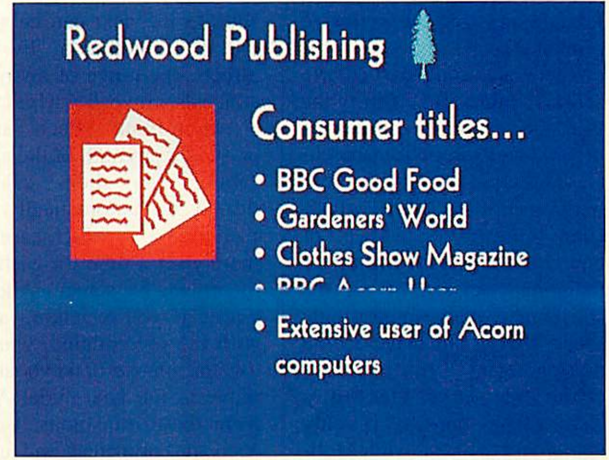
The background of a slide can be any solid colour or you can use a full screen sprite or a sprite tile pattern. However, you can't use a drawing as an automatic background, and this means that those trendy graduated effects where a slide background fades from dark to pale are not possible this way. You can of course put a drawing in a normal frame, and push it to the back on every slide to form a 'background', but you still get a banded effect on screen as *CableNews* doesn't use Risc OS 3's dithering when displaying drawings.

FOLLOWING SCRIPTS

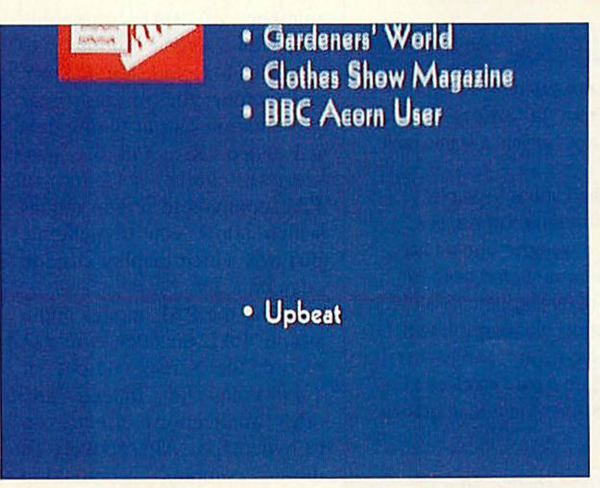
An innovative feature of *CableMake* is that a longer text file, a 'script', can be attached to each slide. The script doesn't form part of the slide itself when displayed on



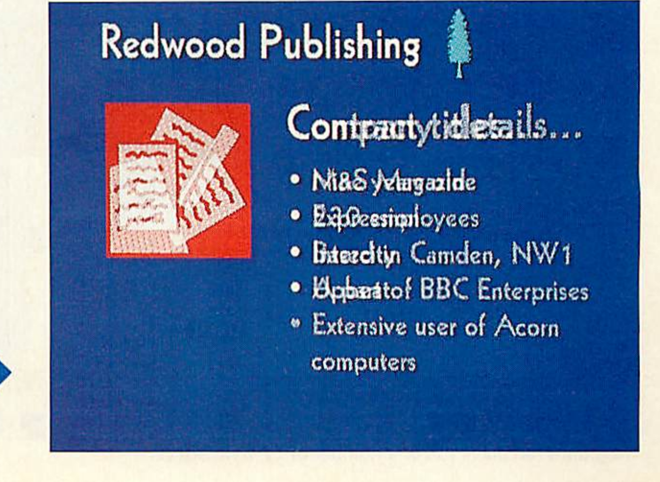
The first slide in our presentation sets the scene for an on-screen slide show



Transition number one: the second slide rolls down the screen, to cover the first



Transition number two: the second slide lifts up to reveal the third slide beneath



Our final transition: the third slide dissolves into the final slide

screen, but it prints out alongside if you print the slide on paper. You can define a stylesheet for the script too, to control typeface and size.

Scripts can be used to produce a set of illustrated presentation notes as a handout, or a simple script for the presenter, and you can add titles and so on to the handouts. At least that's the theory.

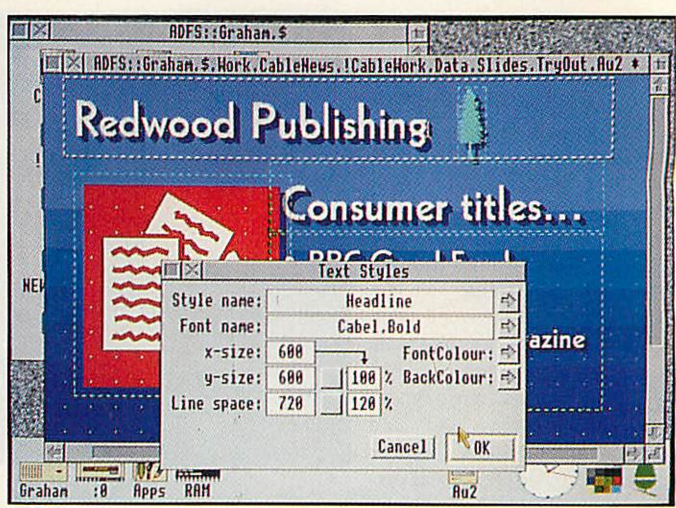
First I found that the script failed to load because in-memory transfers aren't supported. So I had to type the script in *Edit*, save it, then drag in the text file from disc. Then I could not get the script to print at all.

There are three particularly serious omissions from the Print menu. There is no facility to produce 35mm transparencies – the professional presentation medium – nor to print a slide full-size on a sheet of paper, nor a way of printing a thumbnail version of all the slides in a story on a single sheet. You could make 35mm transparencies by sending colour Postscript files to a slidemaking bureau, if only you could print a slide full-form, but the *CableNews* manual gives no hint of this. Finally, when you're using the Risc OS 3 Postscript printer driver, *CableNews* doesn't cope with downloading fonts that aren't resident in your Postscript printer.

PRESENTATION

Once you have drawn a series of slides, assembling them into a story is simple. You create a new story file, then drag in the slides in order. You can edit the order easily, and insert or delete slides at will.

The transition from one slide to the next can be set to one of a number of TV-style effects: the range of dissolves, conceals, reveals, wipes and Venetian-blind effects are a particular strength of the application. The slides can be displayed automatically by *CableView*, in which case you merely set a time for each one to remain on screen. Alternatively, if you're talking along with the presentation, you can use the mouse or keyboard to move to the next slide. Aside from these transitions, *CableView* is competent and unexciting: it runs full-screen, but you can use the mouse pointer to highlight areas of the slide if necessary. You can step forward and back through the slides using Page-up and Page-down (though, oddly, Page-down takes you to an earlier slide), and you can Esc back to the desktop at the end.



Style is added on a frame-by-frame basis

While *CableNews* doesn't support any slide recorders, it does have a good video capability. This stretches from a mode module which defines a number of PAL-compatible overscan screen modes, to controls for choosing a drop-out colour for mixing your presentation output with external video. Risc OS 3.1 provides a similar selection of PAL-compatible screen modes which allow you to generate pictures which display edge-to edge on a TV.

Using the PAL modes and a simple PAL encoder, you can record the screen output of *CableView* (or indeed any other application) directly on to videotape. Alternatively, a more complex genlocking board like the Wild Vision Chroma series allows you to mix external video with computer-generated images – either for captioning of the video, or for using the video as a background for a presentation. A table allows you to pick which colours on screen should be transparent, allowing the video to show through, and this is straightforward in 16-colour modes. But in 256-colour modes, each button in the table controls the transparency of a block of 16 colours grouped in a less than obvious way. This results from the way VidC works, but it makes 256-colour video overlay control a bit hit and miss.

SO . . .

So what do we have: text which you can't edit; script files which you can't read; a slide presentation system that can't produce slides. You can generate rolling displays on your monitor, or record your computer output on videotape, but that's about it. For almost every user, there is a better way. *Magpie* or *Genesis* are considerably cheaper, they can make nearly as good a job of an on-screen presentation, with much less fuss. You can use any DTP package to prepare colour Postscript files for a bureau to create 35mm transparencies from.

So many simple things – like editing the text on a slide or cropping the edge of a sprite – force you to export to another application. This and the limitations of the package make it deeply frustrating to use. The only unique advantage of *CableNews* is the selection of funky transition effects in *CableView*, and even 628 Software had that cracked a couple of years ago with *Slideshow*.

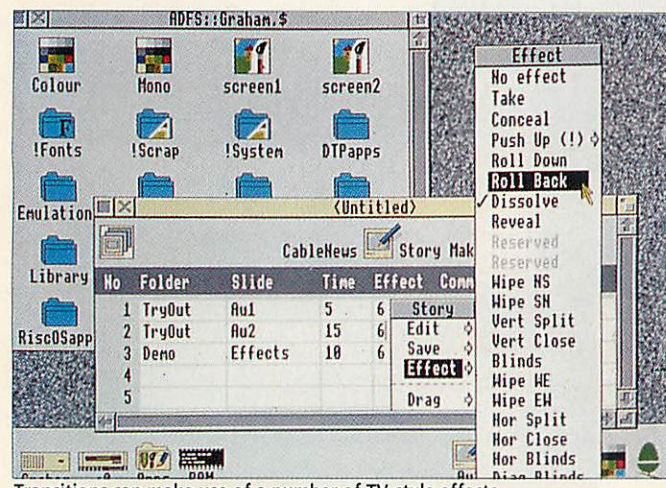
The impressive results that can be created with the *CableNews* presentation system come at a cost that I personally would be loath to pay. Or have I missed the point?

MORE TO COME

Lingenuity have told *BAU* that, although they are aware of some shortcomings within *CableNews*, many of the missing features – such as the lack of cursor editing and text style changes within a frame, will be present in near-future releases.

Some features, like anti-aliased text shadows, cannot be implemented sensibly with Acorn's current system software. Others, like full-form printing and text handling are being developed but are not yet reliable enough for release. Meanwhile, the priority has been to release a reliable package, even if that meant removing functionality.

Finally, Lingenuity is actively seeking to support higher resolution screen displays, such as Computer Concepts' Colour Card, and further data file types including Acorn Replay. Unless you need *CableNews* 'now', then the best advice must be to wait for the promised upgrades to appear.



Transitions can make use of a number of TV-style effects

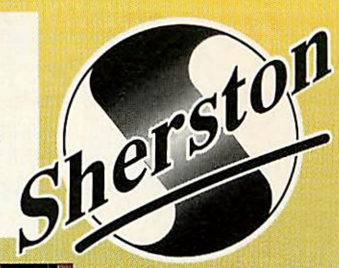
PRODUCT DETAILS

Product: CableNews
Supplier: Lingenuity
Tel: (098) 685460
Price: £175

Who says learning can't be fun?

Looking for something with less zap and splat for your children this Christmas?

Sherston Software has a range of software that is both fun and educational to keep children of all ages meaningfully entertained for hours on end! Just take a look at some of our exciting titles for the Archimedes range!



The Crystal Rain Forest

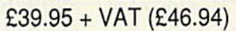
Age Range 8 - 11 yrs

Our best selling adventure ... it's an education!

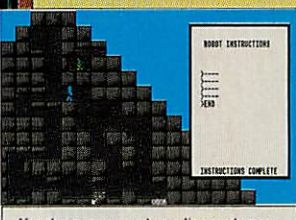
The planet of Oglo is in big trouble. Its last remaining rain forest is rapidly disappearing as the Cut and Run Saw Mill Gang cut their way through it for profit and greed. Only the children can help by tracking down the magic crystals deep in the heart of the rain forest! Full of stimulating and educational challenges.

'a fantastic product ... outstanding ... educational as well as entertaining." *Archimedes World*





£39.95 + VAT (£46.94)



Use the mouse to select a line to change.

Arcventure I ... The Romans

Age Range 9 - 11 yrs

An adventure back in time to Roman Britain!

It's not every day children get to play at being Indiana Jones, and it's not every day they find themselves back in Roman times trying to find out just what it is they have discovered while helping with an archaelogical dig. Children get six chances to travel back in time in this entertaining and educational adventure.

'... a wonderful way to experience history ... a high quality software package. " *Acorn User*





£29.95 + VAT (£35.19)

Arcventure II ... The Egyptians

Age Range 8 - 9 yrs

Time travel and adventure for 8 and 9 year olds!

The adventure of a lifetime for children when they find a series of mystery objects in an archaelogical dig in Egypt and are whisked back in time to try and discover just what they have found. Six mystery objects, each with its own adventure back in time make 'The Egyptians' great value for money. Great fun and educational too!

• NEW IN OCTOBER 1992 • NEW IN OCTOBER 1992 • NEW IN OCTOBER 1992 •





£29.95 + VAT (£35.19)

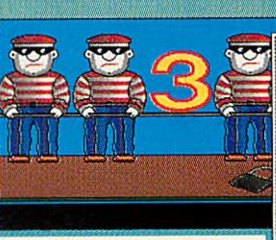
Animated Numbers

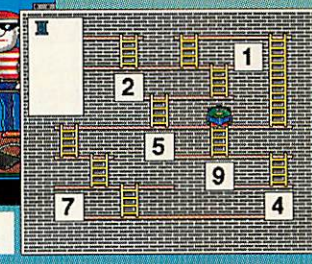
Age Range 4 - 5 yrs

Number fun for young children!

Watch the numbers from 1 to 10 come alive in this beautifully animated program to help young children get to grips with simple number concepts. Three fun filled activities that will entertain and amuse youngsters over and over again. The perfect program to introduce your child to numbers and the computer at the same time!

' ... a program with both entertainment and real educational value... " *Child Education*





£21.50 + VAT (£25.26)

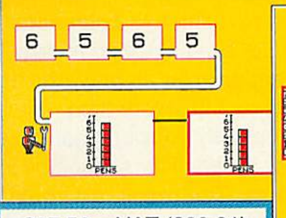
Connections

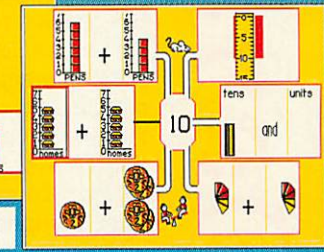
Age Range 5 - 7 yrs

An award winning approach to Maths!

Designed to help young children with their maths and number work, Connections won the prestigious GOLD award in the Educational Technology Awards 1991. Numerous maths activities and four levels of difficulty make Connections suitable for a wide range of young children.

' ... thoroughly entertaining ... very useful ... excellent value for money. " *The Times Ed.*





£27.50 + VAT (£32.31)

Christmas Allsorts

Age Range 7 - 70+ yrs!

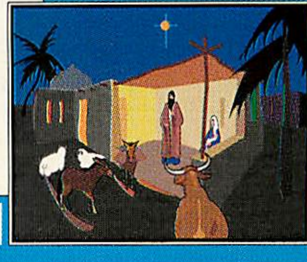
Treat yourself to some Christmas clip art!

A colourful collection of high quality Draw files including toys, food and drink, decorations, greetings, people, animals, trees and of course reindeers and sleighs ... everything you could possible need to create your own unique Christmas design. There are even six full scenes to build up your Christmas pictures on!

• OUR BEST SELLER AT THE ACORN USER SHOW 1992! •



£16.95 + VAT (£19.92)



Sherston Software Ltd

Swan Barton • Sherston • Malmesbury • Wiltshire • SN16 OLH
Tel 0666 840433 • Fax 0666 840048



All prices include carriage within the UK. Please make cheques payable to Sherston Software Ltd. Access and Visa welcome.

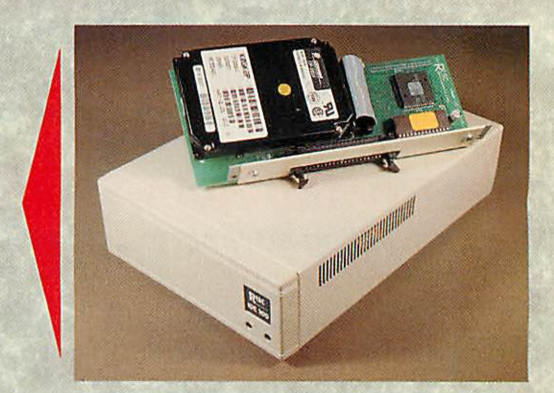


Our full range includes over 50 educational titles for the BBC and Archimedes. Write or phone for your free catalogue.

RISC Developments' Hardware

IDE Hard Drive Kits

The range of IDE hard drive upgrades from RISC Developments is second to none. We have already supplied well over 2000 drives to home, educational and business users, and can offer first rate solutions to users of the A310, A400 series, A540, A3000, A3010 and A5000. All drives are supplied ready to use, and can be installed in minutes. The price includes the interface card, fitting instructions and manual. We are able to offer both internal or external drives for each computer, depending upon your preference, or hardcards, where the drive is mounted on the interface board itself.

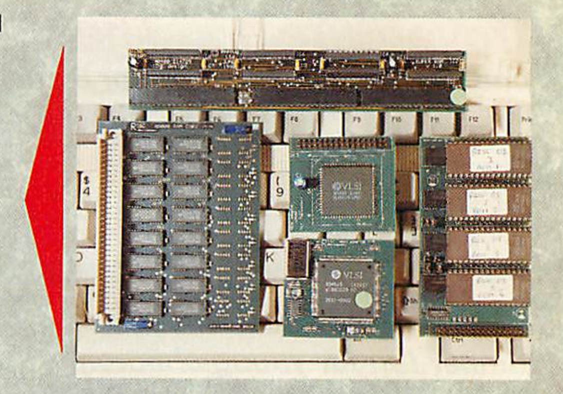


A3000 Drives	**Internal**	**20 Mb**	**£205**	**60 Mb**	**£359**
	External	**40 Mb**	**£359**	**100 Mb**	**£459**
A310 / A400	**Internal**	**40 Mb**	**£249**	**100 Mb**	**£349**
	External	**40 Mb**	**£349**	**100 Mb**	**£449**
Hardcards		**20 Mb**	**£205**	**60 Mb**	**£359**
A3010	**Internal**	**20 Mb**	**£199**	**60 Mb**	**£349**
A5000	**Second Internal**	**100 Mb**	**£279**	**200 Mb**	**£459**

This is just a selection of our drives. Please call or write if the drive you require is not listed.

Memory and Processor Upgrades

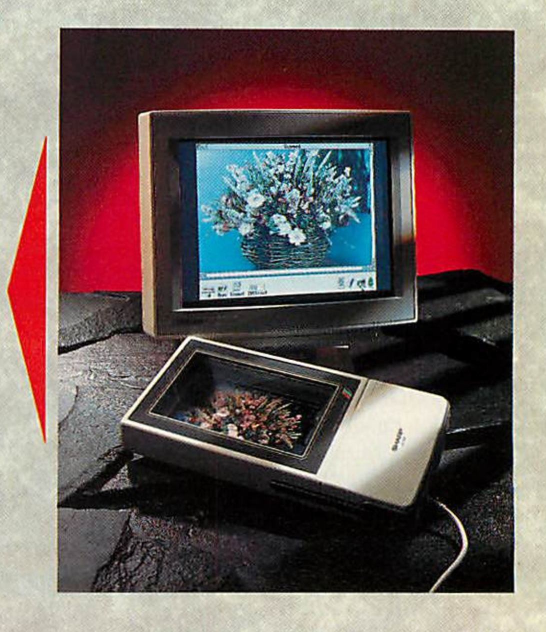
RISC Developments produce a wide range of memory upgrades for the full spectrum of Acorn computers. All the upgrades use the highest quality components and consist of either plug-in chips or multi-layer circuit boards designed to Acorn's guidelines. This prevents the reliability problems and random errors during use that are found on some lower quality upgrades. All the upgrades are fully user fittable and supplied with comprehensive instructions.



A3000 1Mb RAM Card	**£49**
A3000 1Mb RAM Card (Upgradable to 4Mb)	**£59**
A3000 4Mb RAM Card	**£139**
A3010 1Mb RAM Upgrade	**£39**
A3010 4Mb RAM Card	**£129**
A3020/A4000/A4 2Mb RAM Upgrade	**£89**
A310 4Mb RAM Card (inc MEMC 1A)	**£269**
A400 1Mb RAM Upgrade (4Mb max)	**£35**
A410/1 8Mb RAM Card	**£569**
A420/1 8Mb RAM Card	**£509**
A440 and A440/1 8Mb RAM Card	**£479**
A5000 2Mb Upgrade	**£99**
ARM3 Upgrade	**£185**
Fitting of ARM3 to A3000	**£30**

Spectra Colour Scanner

Spectra is a revolution in colour scanning systems for the Acorn range of computers. Its clever design means that it is as simple as you could possibly want and yet as powerful as you will ever need, producing professional results every time. It is a flat-bed scanner, which means that you simply lay your original under the scanner, load the program and 'click' on Scan. The scanner will then do the rest, scanning in 16 million colours. The result is a sprite that can be in full colour, 256 grey-scale or mono depending upon your requirements. This is a full multitasking application and so you can continue using the computer even while it is scanning.



The Spectra kits include the scanner itself, an interface card, user guides, software and everything else you need. Versions are available for the Archimedes & A5000, A3000 (External) and A3000, A3010, A3020 & A4000 Internal.

Spectra -	**Archimedes or A5000**	**£549**
	A3000, A3010, A3020 Internal	**£549**
	A3000 External	**£559**

Available from all good dealers. All prices are exclusive of VAT and carriage. Education prices on request.

RISC Developments Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. 0727 40303 Fax. 0727 860263



DAVID WOOD

Dave Lawrence looks at Ultimate: the first solution to expanding the A3010 and the A3020

BREAKING OUT

Proud owners of Acorn's latest babies, the A3010 and A3020, may have noticed the definite lack of anything resembling podule expansion sticking out of the back of their machine. In fact both machines are capable of being expanded, but only via an internal system like the one inside the A3000. The single external slot present on the A3000 did not survive Acorn's cost-cutting exercise.

Having only one expansion point can cramp your style rather – if you add a hard disc drive, you won't be able to add that digitiser you've always wanted. This is where HCCS's Ultimate Multi-Podule system comes in. In essence, it is a 'backplane' for the new machines.

Obviously you cannot plug existing podules into it, so instead HCCS have developed 'micro-podules' roughly the size of a credit card which will fit. The A3020 version will support up to three of these, while the A3010 has space for just two – the extra 'slot' is taken up by a tiddly IDE drive (The A3020 itself already has support for an IDE drive).

The Ultimate card takes up pretty much all of the available space between the power supply, keyboard and floppy drive and has just a handful of components on it. There is, however, a 6522 chip that provides a BBC style user port 'for free'. There are two (three on the A3020) multi-way sockets on the edge of the board nearest the keyboard that will accept micro-podules. The metal work on the back of machine provides physical support for the card at this end and space for a D-connector to the outside world.

SCSI and Vision cards should now be available from HCCS; plans for analogue, serial, Midi, scanner and direct drive laser cards are also on the drawing board. A separate power supply and fan are essential if you have the IDE drive fitted, and recommended if you have any micro-podules fitted. This obviously adds another plug to your system, but the poor A3010 was never really designed to be so heavily burdened.

The SCSI card features a licensed copy of the latest Acorn CDFS code, so you should be able to use CD-Roms without any difficulty. Connection is via a 26-way 'high density' D socket.

At first I found the card quite hard to fit because of the sheer size of it compared to the space it is meant to fit in and the number of pins you have to line up inside. Disc drive cable also tended to get in the way.

Viewing the machine from the back helps an awful lot and after a couple of tries this proved to be the best way. Of course, you're only likely to fit the card once – I wanted to find the best and easiest way. Installing and removing micro-podules is straightforward – in fact, a lot easier than full size versions in 'big' machines.

Once installed, I would recommend a Delete/power-on to reset the CMOS Ram – mine was certainly in an odd state and the system refused to work first time.

Typing *PODULES should reveal the Ultimate system and a new * command – *MICROPODULES – will tell you what micropodules you have installed. You can now use your machine using all the benefits of your newly acquired expansion.

HCCS provides configuration programs for SCSI and IDE (if fitted) to set up the number of drives and so on. The IDE system has automatic power down and drive parking. Drives can also be partitioned into up to four 'logical' drives each of which can be password protected against reading, writing or both. The expansion slot only supports eight-bit transfers, so data rates may be lower than you're used to. But I timed the A3010 IDE drive at about 300K per second saving and loading – perfectly acceptable speeds.

CONCLUSION

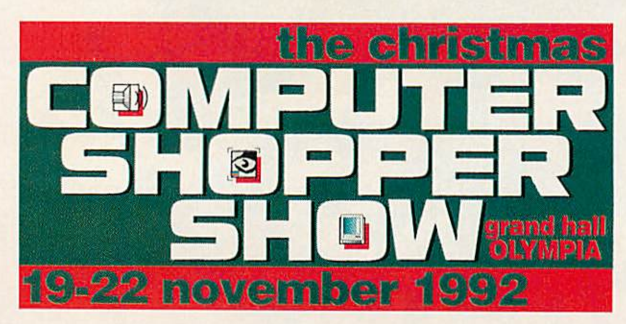
If you want a machine that you can keep on expanding with Ethernet, PC card, laser printers, scanners, SCSI and so on, then a 'full size' machine like the A5000 is probably your best bet. But I think that the Ultimate system is an excellent way of expanding an 'unexpandable' machine.

HCCS will obviously be supporting the system in the future, and its list of planned micro-podules is definitely a good start. It will be interesting to see if any other manufacturers like the idea enough to develop micro versions of their own podules.

PRODUCT DETAILS

Product: Multi and micro-podules
Supplier: HCCS, 575-583 Durham Road, Low Fell, Gateshead, Tyne and Wear NE9 5JJ.
Tel: 091-491 0431
Prices: Multi-podule £33; power supply £20; micro-podules: 30Mb disc £269; SCSI card £99; Vision card – £79

MAKE SURE YOU'RE ON THE RIGHT TRACK





See Linford Christie and Colin Jackson in action in the Acorn Village at the Christmas Computer Shopper Show*

As part of Acorn's major presence at the show Linford and Colin will be playing ***"Quest for Gold"*** a complete track and field simulation which uses stunning computer graphics and true life training regimes.

Powerful Acorn 32-bit RISC computer systems bring the simulation to life, making it both exciting to play and amazingly realistic.

All the TOP ACORN DEALERS will be there to demonstrate and sell Acorn's new products, including software and peripherals.

The centre piece of the village will be the Acorn theatre where continuous presentations will give you an insight into the new machines and their capabilities, plus the opportunity to put them through their paces.

*Guest appearances on Saturday / Sunday





Call the Ticket Hotline

071 373 8141

Adult	~~£6.50~~	£4.50
Under 16s	~~£4.50~~	£3.50
Family of 4	~~£20.00~~	£15.00

SHOW OPENING TIMES

10am-6pm 19th - 22nd NOV.

Box Office Closes 16th November

PLUS- 200 TOP EXHIBITORS • 486s TO PALMTOPS FREE BUYING ADVICE • MULTIMEDIA AND VIRTUAL REALITY • WINDOWS

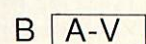
How to get there: The show is at Olympia Exhibition Centre (Grand Hall) Hammersmith Road London W14 between 19th-22nd November 1992

Tube - Olympia, District, Circle, Piccadilly and Metropolitan Lines

Bus- Numbers 9,10, 27, 28, 31, 49 and 91

Organised by







GAME SHOW

Last month the crowds flocked to the *BAU* show at Wembley, and the games were waiting . . .

The 32-bit version of *Sim City* was shown to us at the Krisalis stand. *Sim City* has been highly popular on just about every other format, including the BBC micro, on which it was released by Superior Software in 1990.

In *Sim City*, you are the mayor of a small city: a nice job sometimes but a rough one if you're not careful. By setting taxes, defining residential, commercial and business zones and providing all the amenities your residents need, the city will prosper and grow.

Sim City 32-bit runs in a window in the Desktop. This means you can set the taxes, then type a letter, build a power station, plot a diagram in *Draw*, bulldoze a field, do the home accounts and finally read the opinion polls, all in the same afternoon. The 32-bit version has a number of new graphics features, including population density maps; traffic density, power distribution and police influence maps; land evaluation diagrams and pop-up windows containing budget control and public opinion information.

Unfortunate players may remember the various flavours of disaster that will routinely pay a cruel visit to an otherwise happy city, wreaking havoc in the form of tornadoes, earthquakes and even a giant Godzilla-type creature that stomps on buildings and kicks down power lines.

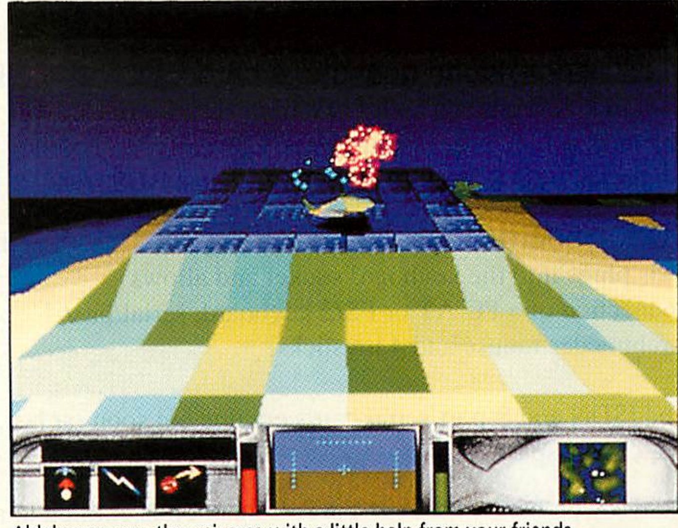
Well, the 32-bit *Sim City* disaster list has sadistically been enhanced. Flash fires and floods may now be the cause of your ruin, or even – without the best of timing in the light of the Amsterdam tragedy – an aircrash. Watch out for a full review of *Sim City* in these pages soon.

SAVE OUR SUN

The Swiss firm Arc Angels had a game on display that was once scheduled for release by the now defunct Eterna Software. *Aldebaran* seems to loosely follow the plot of *Star Wars*, in the sense that evil baddies plan to blow up the sun and the tenants of the local planet ain't too happy about it.

Flying between planets, your team of onboard, on-the-ball professors must be set to work in building a weapon capable of despatching the baddies. The resources they need are to be found on the various planet's surfaces and that's where you come in.

The game is split into many sections: interplanetary navigation, management of your team of profs and *Zarch*-style action – flying around on the planets' surfaces – to name but a few. The latter is more fun than *Zarch*, since the ship bounces off the ground and can travel below the surface of the animated water. It can also perform neat little aerobatic tricks to confuse the alien ships and the flying seems, from the demo version, to be a tad faster too. In between planets, the mothership control panel shows all the planets in 3D, and the spaceship travels in real time. The whole mission must be completed within the space of a real week.



Aldebaran: save the universe with a little help from your friends

Aldebaran has some good graphics which were hand painted and then scanned in, and the game is set to become a star title. It isn't finished yet, but will almost definitely be ready by December.

SADDAM'S REVENGE

Another item at the show was the interestingly titled *Saddam's Revenge* from Evolution Computers, a budget-priced puzzle game that revolves around the Gulf War, and is essentially a board game played on screen. The playing grid represents Kuwait, and the object is to clear it of bombs, after working out where they are.

The faster you can make the country safe again, the more points you are awarded from George Bush, a digitised picture of whom pops up now and then. Levels of difficulty are easy, medium and Schwarzkopf. But, surely, there is scope for more humour. It strikes me that any hacker of reasonable ability could easily tweak the game slightly to make the playing grid represent America instead and then proceed to clear the country of digitised pictures of George Bush.

Another new game, *Cyborg*, is an arcade adventure. Apt, since it comes from Alpine Software, publisher of the *Arcade Games Creator* and the *Adventure Games Creator*. In *Cyborg*, you bounce around in a cyber-electric suit and pop off hostile creatures.

And if the popping business becomes a bit too easy, an adventure section with 100 different locations must be mastered to complete the game, just to keep you busy. Watch out for this release in late November.



On the Krisalis stand, punters were given the chance to test drive Lotus Turbo Challenge, the two-player 'joy-riding' game, in a specially adapted arcade driving console.

NEWS NUGGET

According to Krisalis Software, the contracts for *Lemmings 2* have just been signed. Although not due for 32-bit release until next summer, juicy details have already been leaked. Our foolish little friends have learnt some cunning new ways to wipe themselves out and are to be found meddling with dangerous bow-and-arrows and floating around in balloons they don't know how to steer. *Lemmings 2* will have a two-player option, so twice as many of the little morons can be saved – or crushed, drowned, shot, eaten, hanged . . .

SPHERES OF CHAOS

Matt Black
Tel: (0733) 315439
£24.99
Risc OS machines

Ohhh, ahhh. Pause. Ohhh, Ahhh. Sigh. Is that what you would hear at a Guy Fawkes firework display or is that what you would hear at a Guy Fawkes firework display? Multi-coloured strands of light streak effortlessly across the satin night sky and explode into millions of twinkling stars that float gently earthbound towards the appreciative crowd of happy onlookers, gathered together



Doesn't look chaotic now, but just wait until those guys get close

It is all reminiscent of *Spheres of Chaos*, the first game from Matt Black Software, in which every direct hit on one of the slow-floating spheres produces an explosion of colour.

You control a small and easily manoeuvrable spaceship which can rotate left or right, fire shells, and thrust itself forwards. The spheres multiply into smaller ones when hit so the best strategy is to knock 'em off carefully, one at a time, and not follow the method prescribed by the Sylvester Stallone technique of self defence. Unlike Sly, you only have three lives.

Some floating spheres contain nasty aliens who know exactly where you are and come looking for you. Others contain bonus triangles which zoom across the screen for you to catch. There are also innocent-looking box-like ships which chug quietly around making themselves unpopular by leaving behind a trail of lethal mines.

The best thing about *Chaos* is the fact that up to four people can play simultaneously, either crammed around the keyboard or using the mouse and joysticks to ease the crush. The publishers recommend the new joystick interface from Simon Clay, which has sockets for four joysticks.

Chaos is very flexible and has a number of variable parameters. The screen can be wrap-around or with bouncy edges; the player's ships can explode if they touch each other or can simply rebound off (great fun this one) and the option of gravity can make the whole experience a bit more down to earth. The only thing missing is a password feature to take you on to later levels once the first lot have been mastered.

Although the game is two-dimensional and the graphics fairly minimal, the visual effect is quite stunning, just like a fireworks display. It is even possible to switch off the screen re-draw so that every object leaves a path of itself behind as it travels which, though making it tricky to play, makes the colourful explosions look amazing.

Spheres of Chaos is very addictive and one of those games that can keep you up all night with that 'one-more-go' appeal. My only criticism is that your ship cannot fire continuously and typically pauses for 're-loading' at really critical moments. Apart from that, ohhh, ahhh . . .

Sam Greenhill

GRIBBLY'S DAY OUT

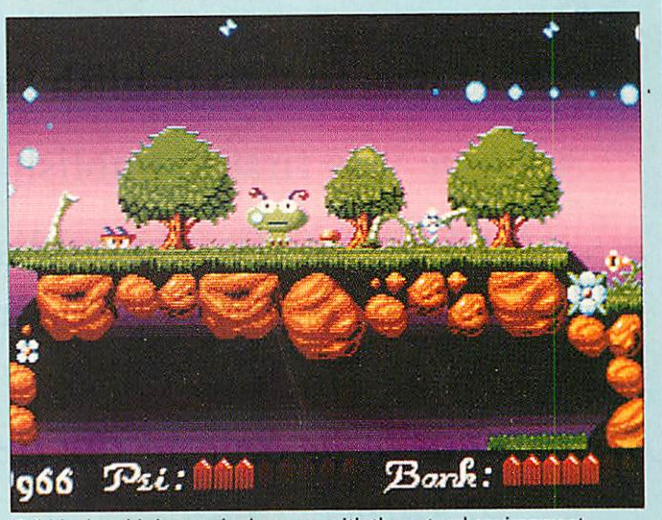
Coin Age
Tel: 0282 692688
£25.99
Risc OS machines

This is a rather unusual game, originally out on the Amiga and by Andrew Braybrook (of *Uridium* fame). Now it's brought to us by Coin Age, which has given it a thorough face-lift, improving it for the Arc. You play a green, levitating alien called Gribbly Grobbly and you must shepherd the baby Gribbletts, who roam the planet, into the safety of a cave.

The scenario: your path is criss-crossed with an electrified 'web' which has been designed to incarcerate an enormous flying spider who was previously the terror of the area . . . You have to carefully manoeuvre around this web without bumping into it, and if you do your energy level decreases. It can only be replenished by collecting the small mushrooms which are to be found occasionally on the floor. Sections of the prison-web can be deactivated to let you through, if you operate the appropriate controls and, after a while, the whole thing turns off of its own accord. This makes it much easier to get around, but it also means that you've got an escaped homicidal spider on your tail.

The characterisation is wonderful and the Gribbletts perform little backflips to show you where they are (also making it very difficult to get hold of them.) Winged beasties swoop down from time to time to kidnap the Gribbletts and you need to have your trusty bubble-firing gun at the ready. Skill is needed to levitate around without colliding with things and you must have your wits about you when you're running away from the rampaging spider.

All this takes place over a backdrop of no less than 4,096 (*has anybody counted them?*)

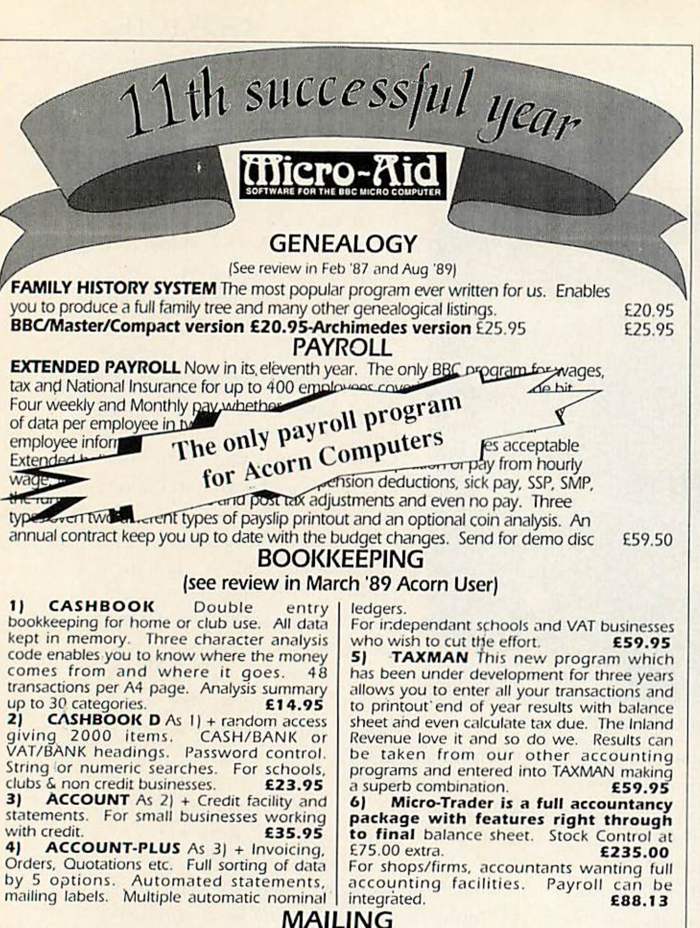


Gribbly does his best to look at one with the natural environment

colours. The programmers were firmly told that this was technically impossible but to everyone's surprise they went ahead and did it anyway, resulting in a series of dazzling raster bars. The foreground moves in front of this backdrop, providing a level of vertical parallax and adding a great sense of depth. All the graphics have been designed with maximum 'cute-factor' and the attention to detail is obvious.

At first, *GDO* is a bit tricky to play but you soon master the techniques needed to airlift the Gribbletts to safety. Overall this is a charming and visually stunning game.

Mathew Tizard


11th successful year
Micro-Aid
SOFTWARE FOR THE BBC MICRO COMPUTER
GENEALOGY
(See review in Feb '87 and Aug '89)
FAMILY HISTORY SYSTEM The most popular program ever written for us. Enables you to produce a full family tree and many other genealogical listings. £20.95
BBC/Master/Compact version £20.95-Archimedes version £25.95 £25.95
PAYROLL
EXTENDED PAYROLL Now in its eleventh year. The only BBC program for wages, tax and National Insurance for up to 400
Four weekly and Monthly
of data per employee in
employee infor
The only payroll program for Acorn Computers
es acceptable
pay from hourly
pension deductions, sick pay, SSP, SMP,
and post tax adjustments and even no pay. Three
types of payslip printout and an optional coin analysis. An annual contract keep you up to date with the budget changes. Send for demo disc £59.50
BOOKKEEPING
(see review in March '89 Acorn User)
1) CASHBOOK Double entry bookkeeping for home or club use. All data kept in memory. Three character analysis code enables you to know where the money comes from and where it goes. 48 transactions per A4 page. Analysis summary up to 30 categories. £14.95
2) CASHBOOK D As 1) + random access giving 2000 items. CASH/BANK or VAT/BANK headings. Password control. String or numeric searches. For schools, clubs & non credit businesses. £23.95
3) ACCOUNT As 2) + Credit facility and statements. For small businesses working with credit. £35.95
4) ACCOUNT-PLUS As 3) + Invoicing, Orders, Quotations etc. Full sorting of data by 5 options. Automated statements, mailing labels. Multiple automatic nominal ledgers. For independant schools and VAT businesses who wish to cut the effort. £59.95
5) TAXMAN This new program which has been under development for three years allows you to enter all your transactions and to printout end of year results with balance sheet and even calculate tax due. The Inland Revenue love it and so do we. Results can be taken from our other accounting programs and entered into TAXMAN making a superb combination. £59.95
6) Micro-Trader is a full accountancy package with features right through to final balance sheet. Stock Control at £75.00 extra. £235.00
For shops/firms, accountants wanting full accounting facilities. Payroll can be integrated. £88.13
MAILING
218 addresses in memory or up to 1875 on random access disc. Multiple selected and repeat labels, mail merge, full sorts. Ideal for subscription lists, promotions, any kind of mailing. £14.95 £35.95
Ask for detailed brochure for more software and other items.
Demo discs available for £2.50 each. Micro-Trader £25. Prices include VAT add 85p p/p
PLEASE NOTE OUR MOVE & CHANGE OF ADDRESS FROM CORNWALL
(FAX AVAILABLE)
Kildonan Courtyard, Barrhill, S. Ayrshire Scotland. KA26 0PS.
Tel: 0465 82288




Authorised Education Dealers
47 Winchester Road, Four Marks, Alton, GU34 5HG, Hampshire
0420 561111
AL systems
EDUCATION AND TRAINING MICROCOMPUTER SYSTEMS
IBM
Canon
SJ RESEARCH
SPECIAL OFFERS
A5000/400/30
Morley SCSI Interface £139.00
Morley SCSI High Performance £185.00
85Mb SCSI Hard Drive £229.00
120Mb SCSI Hard Drive £299.00
200Mb SCSI Hard Drive £525.00
A5000 IDE Hard Disc Upgrades
40Mb IDE Hard Drive £159.00
85Mb IDE Hard Drive £199.00
120Mb IDE Hard Drive £249.00
200Mb IDE Hard Drive £425.00
Miscellaneous Drives
44Mb External Cartridge Drive £375.00
88Mb External Cartridge Drive £599.00
Cumana External CDROM Drive £399.00
A3000 60Mb HardCard - Internal £349.00
A3000 80Mb HardCard - Internal £435.00
All prices exclude VAT
Acorn Premier Dealer - UNIX - Network Specialists - Repairs and Maintenance

OMAR SHARIF'S BRIDGE

Krisalis
Tel: (0709) 372290
£29.99
Risc OS machines

ne of the strangest phenomena of recent years is the upsurge of interest in bridge, a demanding game, and one that is an order of magnitude more stressful than chess, in my opinion.

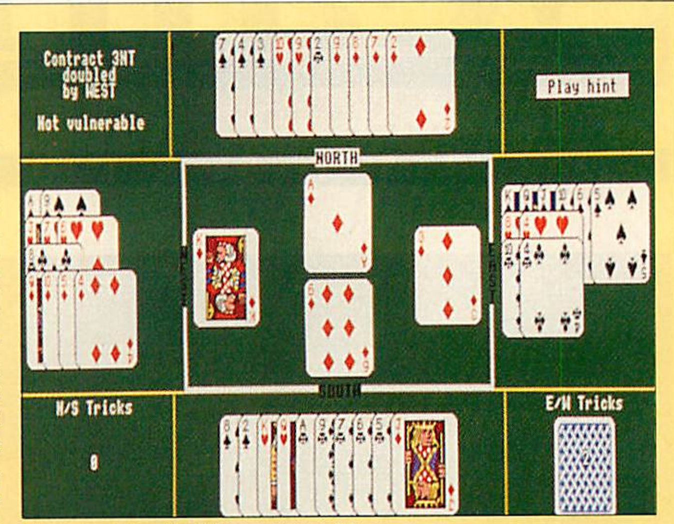
It's has been strong enough to make this game, when released on 16-bit format, a fairly popular item, even though it lacks the bash 'em or zap 'em image usually associated with games.

Bridge is too complex to summarise in a short review, but suffice to say that it is played by four players, in two partnerships of two, the object is to win tricks in the card play, and that the number of tricks you need to win is determined by a preliminary stage of competitive bidding.

Skilled card games are notoriously difficult to program in a thorough way; the interaction between chance and skill involved needs a wholly different approach to the deterministic philosophy of, say, chess.

I therefore approached this game with low expectations and this made *Omar Sharif's Bridge* a pleasant surprise. I had expected to say merely that the program was worthwhile as a means for learning about the game, but little more – like so many other card game programs I have encountered. But, shock, horror, the machine offers some fairly serious opposition, both in terms of stubborn bidding and vicious play, and your partner doesn't let you down too badly as so many other Bridge programs do.

It has to be said, though, that the presentation is not inspired and this is not a conversion that makes particularly good use of the Arc's abilities. The manual, although it covers a range of machine formats, does not mention the Arc, and the conversion has not been made Risc OS compliant. Hence menu options, which are important on other machines, such as claiming all the remaining tricks, do not seem to be available on the Arc.



That was not quite right . . . or was it?

However, there are still plenty of options to keep any player going. There are preset tutorial hands on disc, the program offers hints, the play and bidding can be reviewed, and (horror!) bad moves can be taken back. Before I tell you that this is an excellent program, and that anyone who wants to learn or practise Bridge needs it, I'll add a final complaint. It isn't very helpful having Omar's voice-over telling you: 'that was good play,' when you win a trick, or: 'that was not quite right,' when you lose.

You frequently win tricks stupidly or lose them intelligently. Knock it off,1 Omar!0

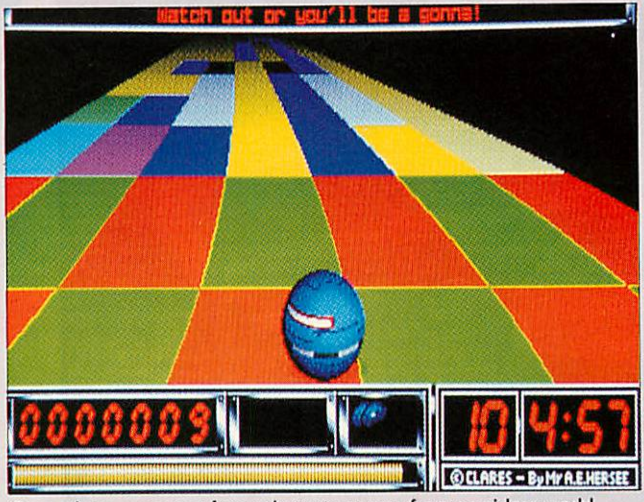
Fin Fahey

FERVOUR

Clares
Tel: (0606) 48511
£24.95
Risc OS machines

Hands up who remembers a game called *Trailblazer*, or *Sphere of Destiny*, as the Beeb version was called? Well, if you came to the *BAU* show this year, you can't have missed *Fervour*, a variation on this theme for the Arc. The author of *Fervour* has never actually seen other versions of the game and so has brought a fresh approach to the idea.

The action comes with an impressively ridiculous background story: it's something to do with the Earth being dead, you running out of air and the planet you go to – to fill up with oxygen before you turn blue – just happening to have a system of energy rings that emit radiation in the visible region of the electromagnetic spectrum. What this actually boils down to is that you have to pilot a small spherical droid along a series of pathways which are made up of different coloured squares.



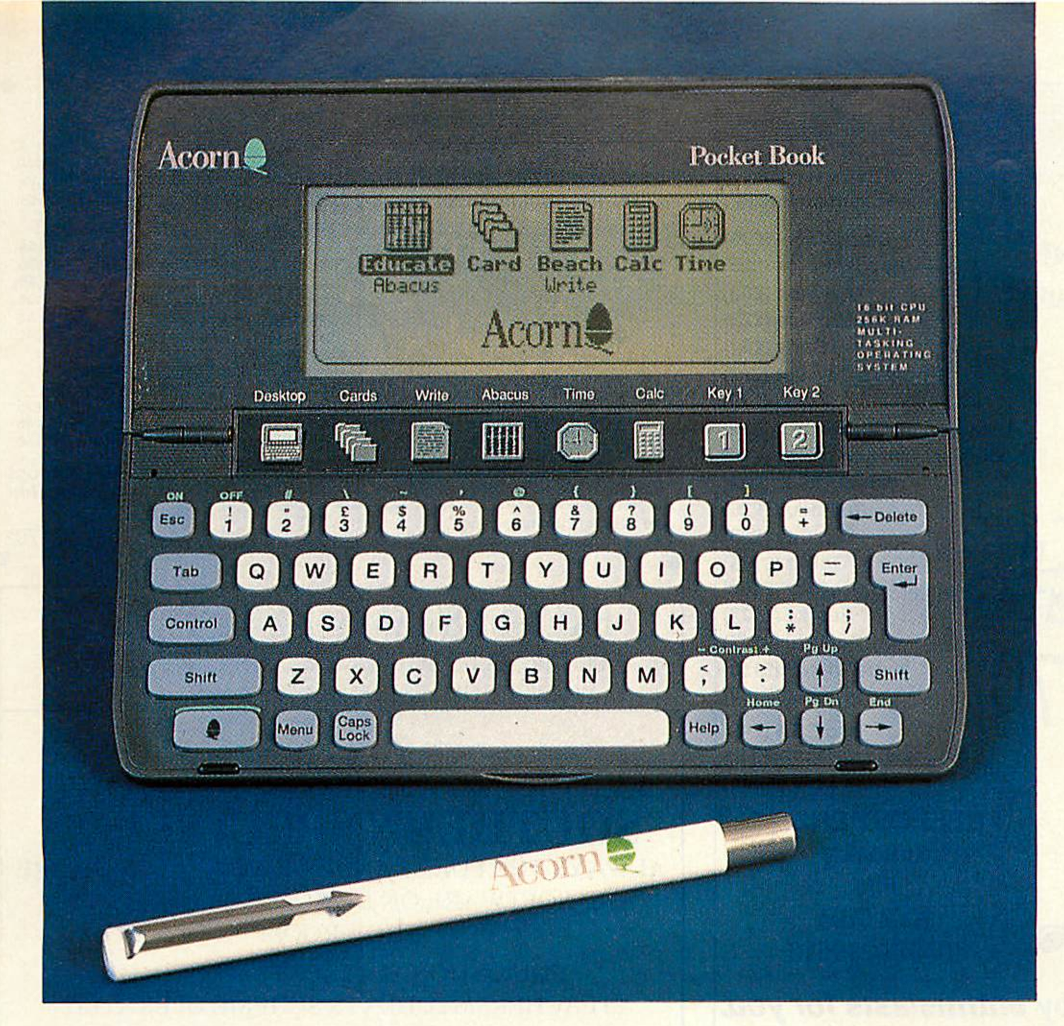
Gasp, phew . . . as you fervently try to escape from an airless world

The different colours have different effects on your droid as you pass over them – some make you speed up or down or swap your controls, some are collectable bonuses for time or points, and some stop you dead in your tracks. Sounds pretty simple, I hear you cry; but not so fast! The catch is that there are also holes in the path, and it's all too easy to drop through like a stone through a wet-paper bag into the infinite void below. On top of this, there is a time-limit for each level and so, under pressure, you have to work out where to move next and, if you jump, exactly what square you will land on.

This is actually quite challenging and the gameplay picks up after a while; once you've learnt what the effect of each colour is. Graphically thé game is original: each pathway shoots under you, emerging from the distance, and the animation and perspective are flawless. Some levels contain bends, which have the expected effect of throwing you completely just when you thought you had the hang of things. A level designer is also included that allows you to fully customise your own games of *Fervour*: you can even import sprites to use as the level maps!

Overall, this is a good version of a tried and tested idea. If you'd like to 'try before you buy' so to speak, check out the public domain distributors and bulletin boards for a free test version. But, finally, a word of restraint: although the demo is distributed by Clares it is not available directly from the company.

Mathew Tizard



Is the Acorn Pocketbook an effective tool in the classroom? Claire Johnson puts it on trial

POCKET PEDAGOGUE

Two days after receiving my Acorn Pocketbook, I bravely lent it to an 11-year old to take into his secondary school for a day's trial. He is a competent Acorn computer user and his verdict on the machine was one of unqualified approval.

Upon his return from school we got down to discussing what he was able to do with the Pocketbook during the day. It transpired that, apart from showing it off to his friends, the machine had been used mainly for recording his homework assignments and for writing a few notes.

He then had to copy the results onto paper, since no-one is yet in possession of the transfer leads and software that are needed to port information over to a desktop computer. He had also set all four alarms, so the potential for class disruption is easy to imagine!

Homework notebooks comprise students' timetables and a weekly record of assignments to be done, completion dates and diary entries. Immediately, the lack of a diary and timetable forms presented a limitation since we could not enter any of these things in a suitable format.

The most obvious use students will find for the machine is word processing; they can use it for writing short reports for desktop publishing, taking notes during lessons, starting the draft of a long essay, continuing work during short periods of free time or completing homework. Those of us with some typing skills found the limited keyboard size of the Pocketbook and, as a result, the lack of speed very frustrating, but, we found, this was not a problem with most school pupils.

However, writing on the keyboard at the speed required might be a drawback to doing any major work in a short lesson. And while the many features on the menus may be useful to advanced word processor users, most pupils do not require them and neither do they match any of the menus that are presented by the word processing programs currently in use on school computers. Of all the text-based facilities, the spell-checker may well be the most useful feature for school pupils. An ability to transfer work from other Acorn machines back into the Pocketbook in order to be able to complete work will be an excellent addition.

The card database, allowing the retention of addresses and notes, is a good feature for adults but has very little application for school use since the labels are preset. The use of databases is required by most of the National Curriculum documents and a more flexible card system would have been very powerful, especially for field work.

The spreadsheet facility is more useful and could have good applications in both mathematics and science lessons. Being able to enter experimental data on a small keyboard in a laboratory for manipulation at a later stage has great attractions. Mathematicians are more likely to find use for the calculator facility, especially being able to save and review previous calculations.

I believe that most pupils would find a Pocketbook immediately attractive and that the initial use of the word processor and calculator might justify its price.

However, I cannot imagine that many of the advanced features are likely to be used and the lack of a diary and having to find access to a convenient printer is a serious drawback. I am sure the portable A4 has far greater potential in most classrooms, especially if priced more competitively.

For a full review of the Pocketbook with link software, don't miss next month's BAU.

PRODUCT DETAILS

Product: Pocketbook
Supplier: Acorn Computers
Tel: (0223) 254254
Price: £212.72 plus VAT
Educational discount: £199 plus VAT or £1990 for 11 machines

The Electronic Font Foundry

Approved Acorn Publishing Dealer





Script Pack (7 fonts) — Save 50% — £35.00

Chance	Perhaps the only script face that can be used for body copy	(Zapf Chancery™)
Finescript	A cursive face with joined up characters, ideal for letters	(FineScript™)
Old English	A traditional Gothic font with a medieval look and feel	(Old English™)
Ruth	A refined alternative to other brush script fonts	(Freestyle Script™)
Sophie	A font from the nineteen thirties which is coming back into fashion	(Park Avenue™)
Tamsin	A popular script font with a brush drawn look	(Brush Script™)
X Script	A unique cursive face with long flowing strokes	(XScript™)

Starter pack (12 Fonts) — Save 70% — £25.00

EFF Times	Regular, **Bold**, *Italic* and ***Bold Italic.***	(Times™)
Swiss 1	Regular, **Bold**, *Oblique* and ***Bold Oblique***	(Helvetica™)
Dingbats	✡❑✏✎✌✍✂☎❶❷①②➲⇨✿✞✓✗✜❡↕➘➚➝❒	(Zapf Dingbats™)
Tamsin	A popular script font with a brush drawn look	(Brush Script™)
Fancy Dress	Perfect for party invitations	(Fancy Dress™)
Soho Black	An unusual engraved face	(Broadway™)

Font Pack 35 (35 fonts) — Save 75% — £49.00

EFF Times	Regular, *Italic*, **Bold** & ***Bold Italic***	(Times™)
EvenWriter	Regular, *Italic*, **Bold** & ***Bold Italic***	(Courier™)
Michael	Regular, *Italic*, **Bold** & ***Bold Italic***	(Palatino™)
EFF AG	Book, *Oblique*, **DemiBold** & ***DemiOblique***	(Avant Garde™)
Swiss 1	Regular, *Oblique*, **Bold** & ***Bold Oblique***	(Helvetica™)
Swiss Condensed	Condensed, *Oblique*, **Bold**, ***Cond.Bold Oblique***	(Helvetica™)
NewSchBook	Regular, *Italic*, **Bold**, ***Bold Italic.***	(New Century Schoolbook™)
Book	Light, *Light Italic*, **DemiBold** & ***DemiBold Italic***	(Bookman™)
Dingbats	✂☎➤ ✌✎✓✖✺✽❨❶②③❹⑤❻➔➢➲➶	(Zapf Dingbats™)
MathGreek	αβγδεφωϖ ⊂⊆∉∋ ∇∂∧∨äõ ΣΩ$_{αγ}$≠ℵ ↔ ⇒ ⇑	(Symbol™)

Decorative Pack (8 fonts) — Save 66% — £25.00

Albert	A typically elaborate Victrorian typeface	(Albert™)
Fancy Dress	Perfect for party invitations	(Fancy Dress™)
Horror	Ideal for horrific story telling round a fire	(Horror™)
HotDog	**A soft, rounded and jolly font for headlines**	(HotDog™)
Outline	Ideal for large headlines which catch the eye	(Outline™)
Streak	A very diferent kind of font, ideal for high fliers	(Streak™)
Sword	A unique font with an oriental appearance	(Sword™)
Xmas	A festive font ideal for the coming season	(Xmas™)

EFF Type Overview (1992 Third edition) — **FREE**

To recieve your copy of the **ALL NEW** EFF Type Overview, a large poster showing all our high quality fonts in one indispensable reference guide please send us your name and address. Also included will be our latest Font price list along with our Hardware and Software price lists.

Why should I buy fonts from EFF?

① **Every** EFF Font is totally PostScript™ compatible.

② All our fonts are fully hinted and scaffolded.

③ All our fonts are available both with and without kerning data.

④ We have the largest range of almost 500 outline fonts available now.

⑤ We employ both Typographers and Software Engineers in the design of our fonts.

⑥ We can supply fonts for nearly 50 different languages.

⑦ All of our fonts are supplied with a comprehensive manual.

⑧ We supply fonts for both Risc-OS2 and Risc-OS3.

⑨ We are the fourth leading type foundry in the UK.

⑩ We supply fonts both individually and in packs from as little as £1.40 each.







How to order from EFF

All prices exclude postage and packing and VAT. Add up the cost of your order add P&P and then add VAT at 17.5%. Carriage for software is £2.50, for carriage prices on hardware please call.

Either phone your order in to us, or send it by post. Most orders are dispatched within 1 working day.

This Advert was produced using NewSwiss (Helvetica Neue) one of our many high quality fonts

The **Electronic Font Foundry**

50/52 • Upper Village Road • Ascot • Berks • SL5 7AQ • Tel 0344 28698 • Fax 0344 872923

QUALITY AND RELIABILITY WITH FRIENDLY SERVICE

Acorn Products

A4 Laptop	
60Mb Hard Disk System	1699.00
Floppy Disk System	1399.00
A3000 2Mb RAM (Requires Monitor)	525.00
A3010 Family Solution (Requires Monitor)	424.68
A3010 Learning Curve	680.00
A3020 2Mb Floppy System	749.00
A4000 Home Office Pack	999.00
A5000 2M HD 80 Multiscan System	1445.96
A5000 4M HD 120 Multiscan System	1599.00
A540 4Mb RAM 120Mb Hard Disk	2096.00
Acorn Pocket Book	212.72
Acorn PC Emulator Ver 1.8	99.00

Unless otherwise stated all Acorn systems include a 14" CGA monitor For a multi-scan monitor please add £50.00 to the above prices

A3000 Upgrades

2Mb RAM Upgrade	45.00
4Mb RAM Upgrade	149.00
20Mb Internal Hard Disk	195.00
42Mb Internal Hard Disk	399.00
User/Analogue Podule	45.00
User/Midi Podule	49.00
Ethernet Expansion Card	220.00
Dust Cover (Complete System)	12.50

A5000 Upgrades

2Mb RAM Upgrade for A5000	90.00
Ethernet Expansion Card	220.00
Dust Cover (Complete System)	12.50

Archimedes Accessories

386 PC Expansion Card 1Mb	485.00
386 PC Expansion Card 4Mb	585.00
ARM 3 Upgrade	199.00
Clares Micro Mouse	25.00
Scan-Light Junior 256	195.00
Scan Light Professional	595.00
Econet Module	45.00
I/O Expansion Podule	75.00
A3000 Styled Plinth (Metal)	20.00

Digital Services Products

Squirrel	
Single User	129.00
Multi-user/Site Licence	516.00
Squirrel Single User to Multi-User/Site Licence Upgrade	387.00
Squirrel 'C' Developers Toolkit	99.00
Waiter Menu System	35.00
Waiter Net/Site Licence	139.00
Freeway Econet Spooler/Server	35.00
Jetstream Tape Streamer 30Mb	299.00
Digistore Tape Streamer	
60Mb	849.00
150Mb	1249.00
Level 3 Digistore Software	50.00
Filestore Digistore Software	50.00
Stacking Filestore Software	50.00
RISCOS Digistore Software	50.00
DSL Floppy Podule	29.00
DSL High Speed Cached 240Mb Hard Disk	749.00

Systems & Silicon

SUPERBUNDLE

Our fabulous new superbundle provides a choice of the new Acorn 32-bit computers with the faster ARM250 or ARM3 processor with £500.00 worth of major software titles.

Superbundle software:

- Acorn PC Emulator v1.7
- 1st Word Plus Rel 2
- Genesis
- LinCAD Starter
- Pipedream 3
- Waiter

The Choice of Computers:

A3010 Family Solution (Requires Monitor)	469.00
A3020 2Mb FD	759.00
A3020 60Mb CGA	899.00
A4000 80Mb CGA	949.00
A5000 80Mb with Multisync Monitor	1399.00

For above systems with multiscan monitors please add £50.00

Monitors

Philips CM8833 II Stereo	169.00
Microvitec 14M325 Colour	165.00
Acorn Colour Monitor AKF17	150.00
Eizo 9060S Flexscan	429.00
Taxan Multiscan Monitor 775	429.00

Dot Matrix Printers

Epson LX100 *NEW*	130.00
Epson LX400	94.00
Epson LX850	137.00
Epson FX850	257.00
Epson LQ100	146.00
Epson LQ200	173.00
Epson LQ570	200.00
Epson LQ1070	309.00
Epson LQ870	356.00
Epson LQ1170	431.00

Laser Printers

Epson EPL4300	589.00
Epson EPL4000	484.00
Epson EPL7500	1144.00
C C Laser Direct 4	899.00
C C Laser Direct 8	1289.00

Inkjet Printers

HP Deskjet 500 Mono	329.00
HP Deskjet 500 Colour	471.00
Canon BJ10e	199.00
Canon BJ300	309.00
Epson SQ870	414.00
Epson SQ1170	564.00



Printer Drivers

Hewlett Packard Deskjet 500C	16.00
Epson JX Compatible (Star LC10)	16.00

Morley SCSI Hard Disks

52Mb External	343.00
52Mb External Cached	380.00
100Mb External	417.00
100Mb External Cached	453.00
52Mb Internal	263.00
52Mb Internal Cached	300.00
100Mb Internal	375.00
100Mb Internal Cached	412.00
SCSI Card	131.00
SCSI Card Cached	170.00

Major Software Titles

Arclight	42.00
Arcol	44.00
Artisan	44.00
CableNews	139.00
Chameleon	29.00
Compression	34.00
EasiWriter	114.00
Equasor	36.00
Euclid	40.00
Eureka	POA
Genesis	86.95
Genesis Plus	69.00
Graphbox	59.00
Graphbox Professional	105.00
Illusionist	78.00
Impression 2	123.00
Impression Business Sup.	38.00
Impression Junior	68.00
Jigsaw	29.00
Magpie	45.00
Mogul	17.00
Notate	49.00
Pendown	54.00
Pipedream 4	149.00
Poster	75.00
Presenter GTI	65.00
Pro Artisan	70.00
Render Bender 2	70.00
Revelation 2	99.00
Rhapsody	45.00
Schema	90.00
smArt	50.00
smArt Filer	32.00
SnapShot (A3000)	269.00
SnapShot (Archimedes)	189.00
Splice	26.00
Squirrel Database	129.00
Tabs	85.00
TechWriter	235.00
Titler	99.00
Tween	26.00
Waiter Menu System	35.00

All prices shown are ex-VAT, which is chargeable at 17.5% on all items for UK residents. No VAT is due on foreign orders.

Most goods are dispatched within 24 hours. Prices are subject to change without notice.

Purchase orders accepted from public sector, otherwise cash with order. Major credit cards accepted.

Carriage in UK mainland £5.00 small items, £7.50 larger items (plus VAT). Overseas carriage at cost.

THAT'S A FAX

Ian Burley determines the facts about Arcfax

Another key gap in the Archimedes software library has has been filled. *ArcFax*, from the prolific David Pilling, is a fax modem driver package.

Just such a gem was included in my wish-list article in August's *BAU*. Forget that expensive, bulky, inflexible, thermal paper-chewing stand-alone job; for just £23.96 plus the cost of a suitable modem, which you might just have anyway, you can turn your Archimedes into a hi-tech fax machine.

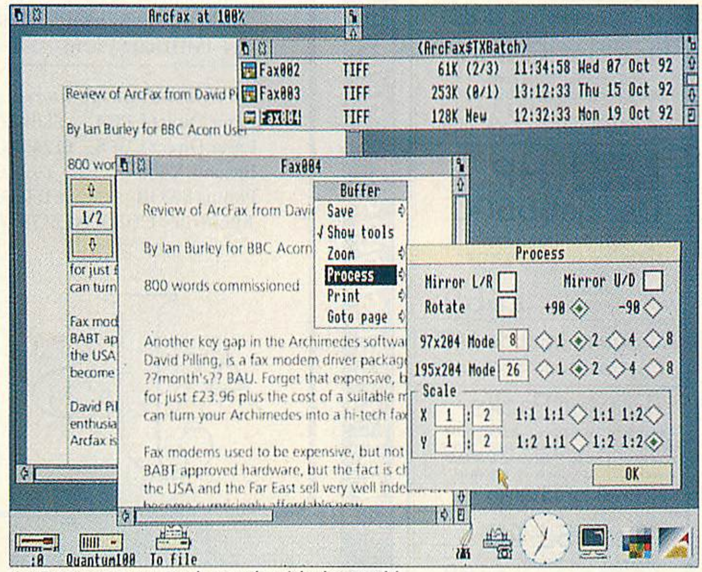
Fax modems used to be expensive items, but not any more. *Acorn User* isn't going to condone the use of non-BABT approved hardware, but the fact is that cheap fax-capable modems, for as little as £99, are imported from the USA and the Far East sell very well indeed. Even approved modems, some locally grown, have become surprisingly affordable now.

David Pilling, the brains behind *ArcFax*, is evidently also well aware that there are probably hundreds of Archimedes-owning comms enthusiasts out there who already own a modem that will work with *ArcFax*. The current version of *Arcfax* is compatible with Class 2 fax modems, but a driver that will work with older Class 1 modems is coming up soon.

Until now, the only Archimedes-based fax solution has been *FaxPack* from Computer Concepts. *FaxPack* is a good system, but it is not ideal for everybody, as *FaxPack* can't be used as a conventional modem.

ArcFax is a Risc OS fax modem driver system that can grab printed output from any Risc OS application as a fax document using a specially modified Acorn dot-matrix printer driver configured for an *ArcFax* 'printer'. The resulting fax documents are automatically filed in an *ArcFax* pseudo-directory, or 'TX Batch' window (*Hearsay 2* comms users will find this very familiar, which isn't surprising as David Pilling is the man who wrote *Hearsay* for Risc Developments)

Faxes are stored as TIFF (tagged image file format) files. Besides the TX Batch directory, there is the RX Batch directory which is where externally received faxes can be found. To view the faxes in either directory, you simply open either the TX or RX Batch window from the *ArcFax* icon menu and double-click on the desired TIFF fax file icon.



ArcFax gets your Arc in touch with the world

An over-complicated dialogue box can be summoned up which contains various image-processing functions. The fax image can be rotated in 90-degree steps or mirrored laterally and vertically. Anti-aliasing can be used to display the fax on-screen, and this smooths the low-resolution image out somewhat, depending which screen mode you are in and how many bits per pixel you assign.

There are also options for scaling the image which, unlike the separate zoom function, physically changes the image data.

My very early version of *ArcFax* had problems printing out faxes with the correct aspect ratio, and there was an oddity that meant I had to deselect and reselect 'fine' resolution mode to enable successful fax transmissions. Receiving faxes proved entirely to be an entirely trouble-free procedure. I tested ArcFax using V32bis fax modems from Supra Twincom.

To send a fax, you must first have 'printed' it to the TX batch window. You then select the resulting TIFF fax file icon to be transmitted and summon a Schedule window. This will be empty at first.

Summoning another menu reveals an Add Entry option which leads to an address book list which is user-configured separately. Choose a destination address or a whole list of addresses for a multiple destinations, close the Schedule window and if *ArcFax* is in active mode, the modem will start to dial and send the fax immediately.

ArcFax uses the serial port, so it's quite likely that something else, *Hearsay* or some other comms program, for example, might clash with *ArcFax*. Hence there is an option to put the program to sleep, which David Pilling calls 'quiescent mode'. This is denoted by a greyed-out *ArcFax* icon. If a fax is waiting to be transmitted it will proceed as soon as *ArcFax* is woken up by a deft adjust button click on the greyed-out icon. A new version of *Hearsay 2* that will intelligently share the serial port with *ArcFax* is currently under development.

I felt the whole set-up process was too complicated, and it's also a pity that there is no direct faxing function from the originating application – the fax document has to be saved first. However, faxes can be automatically sent at preset times.

CONCLUSION

Despite some reservations I have about the way it works, the important point about *ArcFax* is that it exists. To date I know of no other Archimedes package which exploits fax modem capabilities, though I've heard that some competitors are under development. *ArcFax* isn't as refined and as slick as *FaxPack*, but the cost advantage more than compensates for this, especially if you need conventional modem functions too.

Finally, it's important to note that David Pilling has assured me that he will provide full support for *ArcFax*, even modifying modem drivers to suit individuals' needs if absolutely necessary; I'm sure he'll do a good job.

● Likes: *ArcFax* is excellent value and offers affordable customer support.

● Dislikes: No immediate faxing is available from a source application, there is an over-complicated user interface and the manual needs improving.

PRODUCT DETAILS

Product: ArcFax Risc OS modem driver
Supplier: David Pilling, PO Box 22, Thornton Cleveleys, Blackpool, FY5 1LR
Price: £23.96

WeServe of Hampshire

High quality products. Full technical support.

Visit our Showrooms. See before you buy.

Educational Specialist. Established 7 years.

Acorn Educational Dealer. Nationwide Service

WeServe
COMPUTER SERVICES

New Citizens

These printers are a new generation of dot matrix printers with noise levels and quality usually only found in inkjets.

Swift 240
*24pin Colour**
Advanced 24pin printer, lots of new features. Please phone for a data sheet *optional colour. Price with cable & paper
240 Mono £245
240C Colour £265

All Citizen printers have 2 year warranty

Swift 200
*24pin Colour**
Enhanced 24pin printer. SWIFT 24E plus: Extra type faces & features. Please phone for a data sheet *optional colour. Price with cable & paper
200 Mono £195
200C Colour £225

Citizen 120D+
with cable & paper
£109

Canon BJ-10ex
360dpi Inkjet printer with cable & paper £199
New Price

Philips CM8833 MK2
UK. 240V Colour Mon +game £189 with cable £185 no cable

8271
disk controller chip
£38.26 +VAT

Acorn AKF17
Colour Monitor for A3000/BBC's £169
Special Offer

Archimedes

We stock the full range of Acorn computers. Teachers and Educational Discounts are available on most Micros.

If you want free on site service on A3010's as Dixons offer we can provide it foc.

If you want 10% off other peripherals with Archimedes as Watford offer we can do that

We are able to match most offers on Acorn products and provide real customer service. First class customer service before & after sales try us today.

A5000 L.C.
A5000 2Mram 40M Hd Learning Curve S/w & Monitor £1049 +VAT

Deskjet 500
HP 300dpi Inkjet printer. Laser quality at dot matrix price.
3 year warranty. With cable & paper £325

Deskjet Colour
300dpi colour inkjet printer. Colour laser quality at 1/10 of the cost.
3 year warranty. With cable & paper £419

***New* HP Deskjet 550C**
300dpi colour inkjet printer. Colour laser quality, with colour and black cartridges resident.
3 year warranty. With cable & paper £559

All prices include VAT
(Unless stated otherwise)

Printer Packs
All printers are supplied with a printer pack consisting of printer paper and a connection cable. If required a printer stand is £5.00 extra (with a printer)
Free of charge

Star SJ-48
360dpi Inkjet printer with cable & paper £199

Star LC100
9pin colour with cable & paper
New £159

Star

LC20 Mono 9pin	119
LC200 Colour 9pin	177
LC2420 Mono 24pin	185
LC24100 Mono 24pin	175
LC24200 Colour 24pin	249

Prices include VAT cable & paper

SONY DISKETTES
SONY branded
(lifetime warranty)
(100% certified error free)

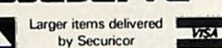
10x 3.5" DS/DD 135tpi	7.50
50x 3.5" DS/DD 135tpi	32.30
100x3.5" DS/DD 135tpi	59.93
250x3.5" DS/DD 135tpi	141.00
1kx 3.5" DS/DD 135tpi	540.50

DISKETTES
SONY / DYSAN bulk
(lifetime warranty)
(100% certified error free)

10x 3.5" DS/DD 135tpi	5.95
50x 3.5" DS/DD 135tpi	21.86
100x3.5" DS/DD 135tpi	39.60
250x3.5" DS/DD 135tpi	94.88
1kx 3.5" DS/DD 135tpi	353.68
40 x 3.5" Disk box with lock	5.49
100 x 3.5" Disk box with lock	7.50

Carriage on 50+ disks £3.53

Phone for our 60 page catalogue (if you don't already have one)
EDUCATIONAL AND GOVERNMENT ORDERS WELCOME
All products have a 30 day money back & 12 month warranty. Prices are subject to variation without prior notification. Please phone for express clearance of cheques.
Established 7 years. 3 minutes from M27 Junction 11.
Free parking. Open 9 to 5.30 Monday to Friday & 9 to 5 Saturday
Postage 94p or £3.53 Securicor £6.46 (£5.50 +VAT)
DEC 92



Larger items delivered by Securicor

Acorn/User Dept.
40-42 West Street
Porchester Hants
PO16 9UW
Tel: 0705 325354

WeServe Best for service

Part Exchange

your BBC, Master 128, A3000 or Archimedes 300/400 for a new

A3020, A4000, A4 or A5000

The table below shows examples of the balance you can expect to pay when part exchanging your old system, but please fone first to confirm

	BBC B	Master	A3000 Monitor	A440/1 Monitor
A3020HD60 System	799	749	499	249
A4000HD80 System	849	799	549	299
A5000HD80 System	1249	1199	949	699
A4 4MHD60 System	1499	1449	1199	949

Printers and Monitors	
Laser Direct LPB4	£869.00
Laser Direct LBP8	£1249.00
Epson LX400	£99.00
Philips 8833II	£169.00
Microvitec CUB3000	£179.00

Second Hand Equipment	
BBC B	£50.00
Master 128	£150.00
A3000	£350.00
A440	£600.00
Monitors	£100.00

AJS



Computers Ltd
51 Heath Drive
Chelmsford
Essex CM2 9HE
tel 0245 345263
fax 0245 345233
All prices plus VAT and carriage

Gnome Computers Limited
25A Huntingdon Street, St. Neots, Cambs, PE19 1BG
Tel./Fax: 0480 406164 E-Mail: support@gnome.co.uk

X Window System R11.4

This software package, developed in association with Acorn Computers, converts a RISC OS based Archimedes into an X Terminal. The software will allow communication with X clients over Ethernet or Econet.

X Software	£199
Complete Colour X Terminals from	£1150

Archimedes upgrades

A440/R140 4-8MB Memory Upgrade	£550
External SCSI 200MB H/D + Acorn SCSI Card	£990
External SCSI 1.2GB H/D + Acorn SCSI Card	£1999
External 150MByte SCSI Tape Drive	£850
External 8GByte SCSI DAT Tape Drive	£1800

Transputer & i860 Systems

Gnome Computers offers a complete range of transputer and i860 boards to fit into either RISC OS or RISC iX based Archimedes machines. Prices start at £1385 for a single 10 MIP, 2 MFLOP transputer system including a parallel FORTRAN-77, C, Pascal, Modula-2 or Occam compiler.

UNIX & Network Specialists



QUESTIONS AND ANSWERS

Q I am about to begin further education, during which I will be learning to program in C.

Unfortunately, the college where I will be studying uses IBM-compatible PCs. Can a program written in C on a PC be compiled on my A3000 and vice versa?

Dave Brooks
Wooton Bassett

A **If both compilers conform to the same ANSI standard and your source code is not machine-specific, you should be able to write on one computer and compile on both.**

Programs that just use C and libraries like stdio should work fine, and initial exercises like printing 'hello world' – this is a great tradition among C programmers – will present no problem. As your studies progress, however, you may want to use graphics libraries and other resources which will only function in one operating environment.

Eventually you will reach a point when the extra labour required to cope with both the Arc and the PC will no longer warrant the effort. When this time comes, don't despair. You will still be able to write at home, you'll just have to compile and debug your work at college.

Q We have a problem with two A3000s that belong to my son and daughter. We bought two R302 2Mb Ram upgrades from Watford Electronics and inserted one in each machine.

At this point, my daughter's machine started going wrong – blank screen, system errors and so on – about once a fortnight. I've been able to clear the problem by cleaning the memory and motherboard but the problem then recurs two weeks later.

There is no problem with the machine when the Ram upgrade is removed. No such problem has occurred on my son's machine. Can you please help me?

W.F. Varney
Fleet, Hants

STAR QUESTION

Q Please can you help me with two questions regarding my A3000. First, which joystick system can I use to improve my performance on *Chocks Away*? At the moment, I'm using the keyboard, which is limiting to say the least.

Second, can you suggest a hard disc system – is 20Mb enough for most people? Is an internal drive a better solution than an external one?

Phil Critchley
Swansea

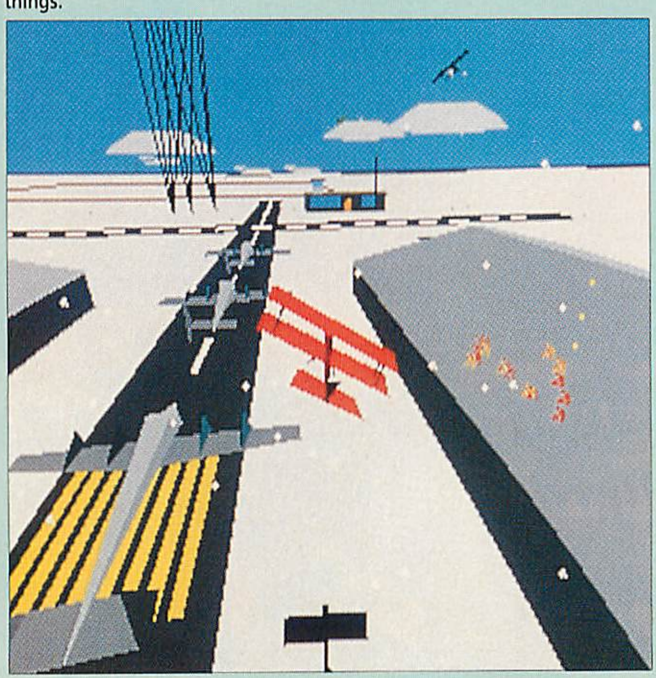
A The Fourth Dimension recommends a joystick made by RTFM on (0534) 67870, but whether this will actually improve your playing skills is not for me to say.

On the subject of hard disc size, here's a simple 'rule of thumb'. You just estimate the amount of storage you need to keep you going for two to three years and then double it.

If the PC and Apple markets are anything to go by, as hard drives become more and more popular, the software manufacturers will produce bigger applications to run on them.

If you don't believe me, ask yourself why standard fixed disc capacity on the A5000 doubled in one year. Although 20Mb is just enough for a small system today, it will not be enough in two years time.

The choice between internal and external is up to you. For expandability and portability, go for an external SCSI unit but, if all you need is cheap, compact storage, then buy an internal IDE unit. On an A3000, I'd probably go for the internal route and leave the expansion socket free for other things.



Is a new joystick the way to succeed at Chocks Away?

A **Every fortnight, eh? perhaps it's simply the phases of the moon . . . Seriously, though, this sounds like a poor connection between the upgrade and the motherboard.**

Assuming you're not cleaning the machines with anything that leaves a deposit or causes corrosion, the fault could reside on either upgrade board or in the connections between them and the machines.

As you are fortunate enough to have two Archimedes available, try swapping the upgrade cards around. If the fault then appears on your son's machine, send the offending card back to Watford Electronics, who will happily mend or replace it.

If the problem stays where it is, contact your local dealer about getting your daughter's computer mended.

Q I have a copy of *Rhapsody 2*, and I have a small problem: I need to write music which has the chord symbols above the stave as well as the lyrics below it.

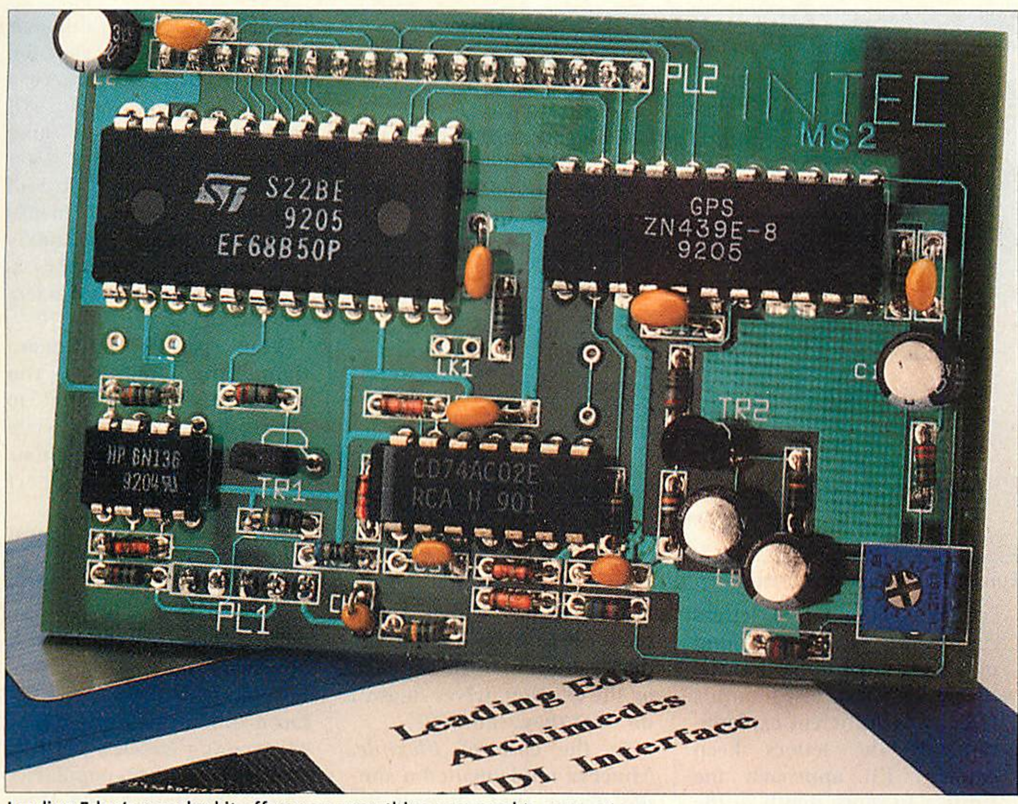
Although the program allows this, the print option doesn't give enough space between successive lines and the words overlap the chord symbols on the line beneath them. Can you help?

Kevin Broderick
Beaconsfield

A **While some music notation packages do reserve a particular section of the line for text, *Rhapsody 2* allows you to put lyrics and chord symbols anywhere you like, be it above, below or even on the stave.**

However, if you place chord symbols at the very top of the line and lyrics at the very bottom, some 'overprinting' between lines may occur.

When the pitch range is great, this is unavoidable, but, if the song allows, you can get around the problem by simply placing the text and/or the chords nearer the stave.



Leading Edge's sampler kit offers you everything you need to carry a tune

Q I have a Master 128 with a serial printer. Recently when I turned the computer on, the screen displayed CMOS RAM reset and told me to press BREAK. Not knowing what would happen, I turned the computer off.

When I switched back on, the screen was in Mode 0 and the drive light was on. Now there is no auto-repeat; the machine starts in ADFS not DFS; VDU7 only gives a soft sound and the printer doesn't work. I think the internal battery has run out, but I've lost the relevant pages of my Welcome guide. What is wrong with my computer and how do I save the operating system in case this happens again?

David Greenwood
Manchester

A It is possible that the battery has run out, but more likely that the R key was accidentally depressed when you turned the machine on. This caused a 'power on reset' which restored the CMOS memory to its original factory settings.

As a result, your computer has forgotten a lot of useful stuff, like what sort of printer you have, how loud to beep and what mode, language and filing system to start up in.

The easiest way to fix this is to run the *Panel* program which came with the Master but if you don't have a copy, you can make all the necessary changes using *Configure. Both methods are described at length in the Welcome guide. If you're unsure about Rom IDs when setting default language and filing system, type *ROMS for a list and, as you have a serial printer, don't forget to set the RS423 port to the appropriate 'baud rate' and data format. You can find these values by checking the printer's DIP switch settings in its manual or by steady trial and error; which means doing test prints until you stop getting rubbish.

Once you've restored your settings, CTRL-BREAK will bring them into operation and *STATUS will give you a list. Print this out and keep it safe. If you want to automate the process, make an ADFS disc and *BUILD a *!Boot* file containing all your *CONFIGURE instructions, that way, if the problem occurs again, you just insert the disc, press SHIFT-BREAK and all your defaults will be restored.

Q I have an A3000 and am interested in transferring music from audio cassette on to my computer for use in my own programs. Can you recommend a cheap sampler that will let me do this?

David Hartburn
Washington, Tyne and Wear

A One sound sampler in current use on the Arc is Vertical Twist's Midi/Sampler card marketed by Leading Edge on (0532) 458800 at £79.99. This consists of a small PCB which sits in the Econet socket on the main board; a cable which connects it to the headphone socket of a hi-fi or cassette player; software to record and edit samples, and a Midi driver for use with sequencers and so on.

When creating music for programs, people often use a sequencer like *Tracker* (also from Leading Edge) to produce tunes made up of sampled 'voices' rather than sample a whole song. This is because samples take up a lot of memory/disc space. Even if you sample in eight-bit mono at 6kHz (which is hardly hi-fi), an 800K disc will only hold 2.25 minutes of sound – and leave nowhere to put the program. If you don't feel like writing your own tunes, there are many available in the public domain, but get the composer's permission before you use one commercially.

Q Looking through the September issue of *BAU*, I noticed how many of the fonts offered by the Electric Fount Foundry seemed to be ones I already possess, having obtained them from public domain libraries.

Does this mean that the fonts I have are illegal copies or just replicas? If they are simple copies, am I breaking the law by having them in my collection, and should I delete them? If they are legally available from PD, why should I buy them from EFF?

Robert Fuller
Basingstoke

A This is a copyright minefield. Some PD fonts are perfectly legitimate pieces of software, freely given to a grateful world, but there are others which have a more dubious heritage.

Most pirated fonts that find their way into the public domain are not written on the Archimedes, but ported across from IBM PC programs (notably *Corel Draw*) so, strictly speaking, selling or using them is a breach of someone's license agreement.

The matter is further complicated by the fact that the 'real' name of a font (for example, Helvetica) also belongs to somebody, probably Adobe Systems, so calling it by a copyrighted name without permission is a further offence.

Of course, the chance of Mr. Adobe knocking on your door and demanding money for his fonts is about as great as that of Mark Knopfler coming round to reclaim your illicit cassette of *Brothers in Arms*, but the moral dilemma is the same.

The other thing about PD fonts is that although quite adequate at normal sizes (8pt to 14pt), many of them fail when very small or very large, due to poor shaping and a lack of 'hinting' in font design. Some PD fonts do not download to PostScript very well either.

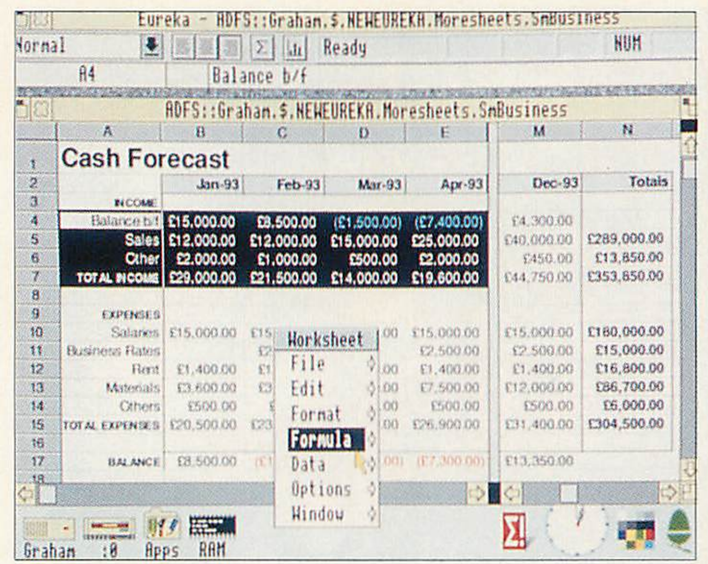
Buying from a commercial house means that the product has been designed to cope with many different applications and, if it doesn't do what you want, you know who to complain to.

Q A number of questions. I keep reading about background printing using files but despite my best efforts I fail miserably. Can you tell me how to do this?

I have recently purchased *Flexifile v.1.06* and find it easy to use. When I came to set up a driver for my HP Deskjet 500, I looked in the printer manual and found seven pages of codes. Which ones do I need and why? When Acorn supplies its own printer drivers, why do companies write their own?

I am running a business on my A440/1 and a good spreadsheet is vital. I have *Schema*, but find it difficult. Having read the review in September's *BAU*, I'm interested in *Eureka*. Which do you recommend?

Keith Parker
Southall



Eureka: is it to everyone's taste?

A We get a lot of letters about background printing, and I hope that the tip published in last month's Q&A was sufficient explanation. If the letters keep coming, I'll approach the subject in more depth in the near future.

Third-party manufacturers usually write their own printer drivers for one of two reasons. Either Acorn have yet to write one for the device they wish to support, or the existing driver doesn't do what they want.

In the case of *Flexifile*, Minerva implemented a simple driver that allowed the database to send plain text to a printer instead of the bit-mapped images produced by Risc OS 2. This is because bit-mapped fonts, although beautiful, are rather slow for printing out long stock control reports and so on. All the driver requires is three escape sequences that select the normal, expanded and condensed print modes found on many dot-matrix printers, and the approximate number of characters per line in each.

Your printer has more than three fonts, so you should use the manual to choose the most appropriate codes. If you get stuck, phone Minerva's technical support line on (0392) 437756.

Spreadsheets, like most other things, are a matter of taste, and I'm sure that many people get on very well with *Schema*, but since it obviously doesn't suit you, try something else. *Eureka* has a similar look and feel to MicroSoft's *Excel*, a product that enjoys huge popularity among Macintosh and Windows users and, if the release version lives up to its previews, it should be well worth a look.

CUSTOMER HOT LINE

Every month in BAU, Alan Glover from the Acorn customer service department offers you Acorn's advice and support

RISC OS 3 – WHICH UPGRADE DO I NEED?

Risc OS 3 upgrade kits for all Acorn 32-bit systems are now available. We've had a number of calls asking which upgrade products are required for which computers, so here goes:

A305, A310, A440 AND R140: These require the Risc OS Single User Software Upgrade Kit (ALA31). They will also require a Hardware Upgrade Kit (ALA32) which allows for the memory size of the new operating system to be taken into account. A complicating factor is that various third-party memory upgrades for the 300 series provide the option to fit larger Risc OS chips at a later date – if the Risc OS 2 chips are fitted in sockets with two empty spaces on each side, you may not require the Hardware Upgrade Kit.

A410/1, A420/1, A440/1, A3000, A540 AND R260: This range only requires the Risc OS Single User Software Upgrade Kit (ALA31).

A5000: The A5000 has a special upgrade (ALA34). Schools can purchase Bulk Software Upgrade kits which contain 10 sets of Roms, one set of discs and one set of manuals, If they have the earlier systems they will of course require a Hardware Upgrade Kit for each machine.

A4, A3010, A3020, A4000: These machines are already fitted with Risc OS 3.

COMPUTERS WITH AMNESIA

All Acorn computers since the Master 128 have relied upon configuration settings being stored in a memory device which is kept powered even when the computer is switched off. This is usually, though incorrectly, referred to as CMOS Ram.

With the exception of the Master Compact, the power to maintain the settings (and the real-time clock) comes from batteries inside the computer. The Master Compact used a device called an Eeprom (Electrically Erasable Programmable Read-Only Memory) which did not require a battery, but only allows a limited number of write operations – where a Master Compact fails to retain its settings this device may need replacing.

On most Arm-based 32-bit systems the battery is a NiCad (Nickel Cadmium) cell, which is trickle-charged whilst the computer is switched on. This can mean that after a machine has been unused for a long period it may need to be left on for several hours to recharge the battery. These batteries should not need replacing.

The Master 128, Archimedes 305/310, Archimedes 440 and Archimedes 400/1 series all use a battery pack with conventional battery cells. The recommended replacement interval for these batteries is annually, however they will often work for much longer. Even now, it is not uncommon to see a 305/310 still on its original pair of batteries. If you've got one of these computers – do you know when your batteries were last changed?

FIRST WORD PLUS

We receive a lot of enquiries concerning printing from *First Word Plus*. This is a little different to most applications in that it uses its own printer drivers, though it is also possible to use the normal Risc OS drivers (*PrinterDM* and so on). If your printer is not one of those supported (or cannot emulate one of these) then you will need to write your own printer driver.

This is easiest done by amending the source file of an existing driver to contain the correct command codes for your printer. Brief details of how to approach this task are given in the *First Word Plus User Guide* and more detailed instructions can be obtained by writing to Acorn's Customer Services Dept

A happy Christmas from everyone in Acorn Customer Services!

NEW

ARM3 upgrade with floating point accelerator option

The first ARM3 upgrade to allow a floating point accelerator chip to be connected directly to the ARM3's 32-bit coprocessor bus. The ARM3 itself increases the speed of your computer by a factor of at least 3, and sometimes even more. In addition the floating point chip speeds up maths operations previously emulated by software.

Other floating point units have the disadvantage of occupying a slot in the backplane. They are also either incompatible with ARM3 boards, or relatively slow due to the 16-bit backplane interface. This upgrade does not suffer from any of these disadvantages.

★ **ARM3 alone gives typical 3 to 4 times speed increase**

★ **Floating point accelerator chip option for even faster maths functions**

★ **High quality 4-layer board**

★ **Fits A305, A310, A440, 400/1 series and the A3000**

★ **Fully compatible with other upgrades (memory, hard discs, RISC OS 3 etc)**

Installation is straightforward for all machines except the A3000, but a fitting service is available in all cases. Please note also that the A300 series and old A440 require the MEMC1a upgrade. Please write or phone for full details.

Our usual money-back guarantee applies to this product.

ARM3 introductory price - **£175**
MEMC1a - **£36** Floating point unit - **£ TBA**

A3000 systems & memory

A3000 - **£599** A3000 Learning curve - **£642**
Free 2Mb RAM upgrade included in the price.

2Mb RAM board (upgradable to 4Mb) - **£45**
4Mb RAM - **£110**
Bare board (without RAM chips) - **£25.50**
An easy to fit and reliable RAM upgrade. 8-chip design for minimal power consumption. **Gold plated** connectors ensure long term reliability. No soldering needed.

A540

Powerful ARM3 based machine allowing up to 16Mb RAM.
A540 with extra 4mb (8Mb total) - **£2495**

All products fully guaranteed. Many products also carry our 14-day money-back guarantee too. Please phone for details.

ARM3+RISC OS 3.10 combined package now only £199

RISC OS 3.10

Acorn's new operating system for their range of RISC computers. The old version of RISC OS (2.00) is just 512K long, whereas OS 3.10 contains 2Mb of code.

Many applications which were previously supplied on disc are now contained in the OS ROMs. This includes improved versions of Draw, Paint and Edit. Because they are available on ROM they are always instantly accessible, and also occupy less RAM space.

Other features include extra "background" operations. For example, discs can now be formatted or files copied while the machine is used for other purposes.

RISC OS 3.10 may be used on the A305, A310, A440, 400/1 series, A3000, A540 etc.

Orders for RISC OS 3.10 are now being taken on a first-come first-served basis. Phone 0752 847286 for further details.

RISC OS 3.10 — £41.70

A305, A310 and A440 owners please note. Although the ROM sockets inside your machine are large enough to accommodate the new ROMs, simply plugging in RISC OS 3.10 *will not work.* This problem is overcome by installing the RISC OS Carrier Board first. The RCB may be used with any version of RISC OS. This carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules").

RISC OS Carrier Board — £20

A5000 systems & memory

A5000 with RISC OS 3, 40Mb hard disc, multisync monitor and ARM3. - **£1399.**
A5000 learning curve. - **£1445.**
Free 4Mb RAM upgrade included in the price.

2Mb memory board (4Mb total) - **£85**
A compact board measuring just 104mm by 49mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disc drive. Four-layer design as specified by Acorn. A bare board (ie without the RAM chips fitted) is also available.

Hard disc upgrades

A range of fast (17mS) SCSI hard discs with a two year warranty, in sizes from 52Mb upwards. Supplied with all metalwork and cables. 400/1 machines merely require the drive and SCSI card. 300 series require a backplane.

40Mb - **£POA** 105Mb - **£260**
170Mb - **£320** 210Mb - **£525**
Oak 16 bit SCSI card - **£100**

Various

Aleph One 386 1Mb PC Card - **£390 (4Mb £475)**
Aleph One 486 1Mb PC Card - **£490 (4Mb £575)**
Impression 2 - **£130**

Free price list available upon request. Prices exclude VAT.

A310 & A305 upgrade column

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a 4Mb system.

2Mb - £89 4Mb - £145

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and 3.10.

The use of only eight RAM chips ensures low power consumption. Compatible with ARM3 upgrades, backplanes, hard discs etc. This upgrade is supplied on just one, compact board measuring only 195mm by 40mm. Four-layer circuitry reduces electrical noise for trouble-free operation. The 2Mb upgrade may be upgraded to 4Mb later by the user, without any soldering. A copy of the fitting instructions is available free of charge.

A complete fitting service is available for our RAM boards covering courier collection, installation and testing, MEMC1a, return delivery and guarantee. This is normally a three-day service (eg, collected Monday, returned Wednesday). We have been upgrading 300 series computers for over three years, and during that time a reliability record second-to-none has been established.

Is there any other 300 series RAM upgrade wich has been available for as long as this one, and which has the same reputation for quality and reliability? No.

Still not sure? Compare it with the competition before making up your mind. Use our 14-day money-back guarantee to check it out for yourself.

RISC OS Carrier Board — £20
This is an easy to install adaptor board for the larger RISC OS 3 ROMs. A set of links on the board allows it to be used with RISC OS 2 and easily adapted for RISC OS 3 later. Suitable for use with the A305, A310 and A440. The adaptor has been fully tested with RISC OS version 2.00 and version 3.10. It is fully compatible with other hardware upgrades such as the RAM board described above, ARM3's, backplanes, VIDC enhancers and expansion cards.

4-slot backplane with fan — £57

Combination deals

4Mb with MEMC1a, self-fit — **£181**
Collection of your computer, installation of 4Mb of RAM, MEMC1a, and RISC OS Carrier Board, testing, full guarantee, and return delivery — **£199**
Special prices available on hard discs, ARM3 boards and software when ordered with any memory upgrade. (RISC OS 3.10+ARM3 for only £199)

DTP special

Your A300 upgraded with 4 Meg of RAM, MEMC1a, ARM3, RISC OS 3 and Impression 2 software £485

We can supply a range of hard drives with the above system.





RAM for 410 & 420

Upgrade from 1Mb to 2Mb - **£34**
Upgrade from 2Mb to 4Mb - **£65**
Upgrade from 1Mb to 4Mb - **£99**
Supplied with full instructions.

IFEL Ltd **Educational and quantity discount available.**

34 Culver Road, Saltash, Cornwall PL12 4DR. Tel (0752) 847286. Fax (0752) 840029

ACORN USER ADVERTISEMENT PAGES – DECEMBER 1992

TELETEXT ADAPTOR

ADD TELETEXT TO YOUR COMPUTER

- Works with most major Acorn computers including A5000
- Price includes manual, user notes, all leads and software
- Can receive Satelite Teletext
- All but BBC and Master Types Multi-Task
- All metal case model with built-in power supply - Top quality unit
- Gives optional TV pictures and sound



RRP £155.00 **JUST £94.00** Inc.P&P

NEW VERSION 2.23 Teletext Software

- Optional update
- Very advanced, designed for schools and colleges
- Many highly advanced features
- Limited number for sale to the public
- Please phone for availability and price

PLUG IN AND GO MEMORY UPGRADES

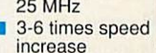
INCLUDING COMPLETE FITTING INSTRUCTIONS - LARGE STOCKS AVAILABLE

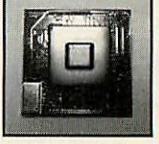
A5000	4 MEG	Gives 2 MEG machines 4 MEG of RAM	RRP £103	*Only* **£76**
A3000	2 MEG	Gives A3000 machines 2 MEG of RAM	RRP £36	*Only* **£27**
A3000	4 MEG	Gives A3000 machines 4 MEG of RAM	RRP £150	*Only* **£95**
A310	4 MEG	Gives A310 machines 4 MEG of RAM	RRP £248	*Only* **£160**
A310	4 MEG + ARM 3	Combines 2 upgrades on simple to fit plug in board	RRP £452	*Only* **£320**

ALL TOP QUALITY, LOW POWER, EASY FIT DESIGNS

ARM 3 PROCESSOR

- RISC-OS Armspeed software
- Cache operation at 25 MHz
- 3-6 times speed increase
- Fits A300/400 series
- DIY plug in design





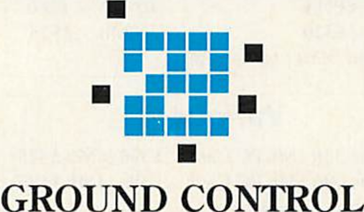
RRP £209

£165

HOURS OF BUSINESS:
9.00 AM - 5.30 PM
(24 HOUR ORDERING FACILITY)







GROUND CONTROL
ELECTRONICS LIMITED

PRICES EXCLUDE VAT, BUT INCLUDE CARRIAGE CHARGES (UK MAINLAND) PACKAGING AND INSURANCE

Further Details on Request
Dealer Enquiries Welcome
Quantity Discount Available

FOR FURTHER INFORMATION TELEPHONE: 0635 524008 OR 0622 747416

UNIT 7, KINGFISHER COURT, HAMBRIDGE ROAD, NEWBURY, BERKSHIRE RG14 5SJ. TEL: 0635 524008 or 0622 747416 FAX: 0635 528115

SOFTWARE SHOWCASE

EDUCATION

EDUCATION

EDUCATION

STATISTICS

SOFTWARE SHOWCASE

PUBLIC DOMAIN

Just bought a new Acorn Machine?

Then get off to a flying start with our PD starter pack for RISC OS3. Five disks full of the best Fonts, Graphics, Demos, Games and Clip Art - all for just £7!! Why pay more for less??

Still Available: our special font pack, over 50 fonts for just £5.

Catalogue & Disc:





PENGUIN PUBLIC DOMAIN
PO Box 273,
London SW4 7XB

PUBLIC DOMAIN

THE DATA STREAM

Under *NEW* Management

Send £1 for a copy of our 2nd *birthday* catalogue / demo disc featuring many special offers.

Prices
Normal Discs £1
-
Pic'n'Mix Discs £1.50

NEW Address :-
The Data Stream PD Library,
34 Norbreck Close,
Great Sankey, Warrington,
Cheshire, WA5 2SX.

PUBLIC DOMAIN



This is the cheapest P.D.library for the Archimedes

So how do you get a piece of the action?.... Well, with no membership fee all you have to do is order the latest catalogue and you`re a member! Just send 90 pence and we will send you a catalogue detailing all the P.D. software we can offer. Remember, each disk costs only **90 pence** inc. p&p!

And as a bonus we are giving you a free disk of your choice with your first order!

Please send your 90p to: The Undercutter, 109 Leitrim Avenue, Shoeburyness, Essex, SS3 9HE. (Make cheques payable to S.Donn)

Special offer: 3.5inch DS/DD disks.
Guaranteed 100% error free, with labels.
Only 37p inc p&p (min 20 disks)



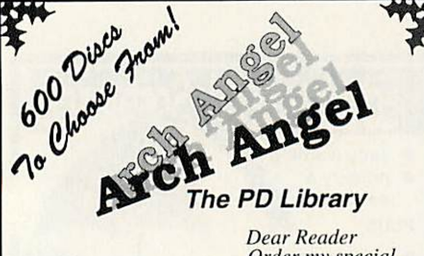
PO Box 1927 : Sutton Coldfield : B74 3QZ

DEMO PACK 12

We are now extending lasts months offer of £100 pounds of free PD, having been already claimed. We are now offering £50 of free PD to the 400th person to send a £1 coin for our Demo Pack 12.

£50 of FREE PD

You can't loose, even if you're not that lucky person, you still get a disc crammed with Archie PD, and a 12 page catalogue, all for just £1.



The PD Library



Dear Reader
Order my special CHRISTMAS PACK which contains festive clipart, demos, and your favourite Christmas Carols to listen to! Two discs, plus my Christmas Catalogue disc. Sorry, but due to the recession, I can't drop it down your chimney this year, but if you send me £3, I will wrap it and send it myself.

love from Santa XX

Send £3 for the CHRISTMAS PACK to:
Arch Angel PD, PO Box 41, Exeter, EX4 3EN.

Skyfall

INSTANT DISPATCH

Skyfall now pre-duplicates all discs, so unlike other Public Domain libraries you won't be left waiting weeks for us to copy your discs.

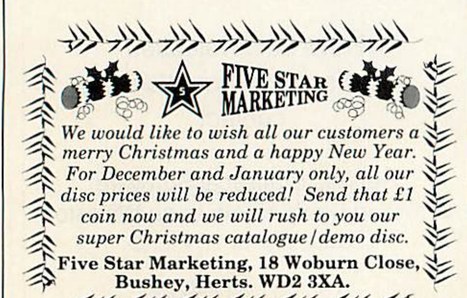
NEW A5000 1600K RANGE

For A5000 and other 1.6Mb Disc Drive Owners, Skyfall is pleased to announce that you can now receive twice as much software for the same low price, with our 1600K range.

INTERACTIVE CATALOGUE

No endless text files from Skyfall, our catalogue is both printed as 16 page booklet and supplied on disc as a desktop simulation which lets you see the discs exact contents, and gives you detailed descriptions.

Please send a £1 coin for our demo disc to; Skyfall, PO Box 2220, B'ham, B43 5RZ.



MUSIC

THEORY OF MUSIC
Questions and Exercises

Archimedes £16 Master £15* B £13.50*
(* plus £1 for 3½-inch or 40-track)

LEVEL 1 THEORY OF MUSIC
(same prices)

These programs take you from beginnings to Grade 5 and beyond. Both have been revised and extended again in 1992.

TED KIRK (BAU), **33 Humber Crescent, ST. HELENS, Merseyside WA9 4HD 0744 818761**
(detailed information on request)

FONTS

Capsoft Christmas Disc

This disc contains Christmas borders, Ornaments and Santas. Other discs Capsoft 1 and 2 contain Drawn fonts and borders. All for use in Desk Top Publishing and any application accepting Draw files. All borders are also prepared for use with Impression II

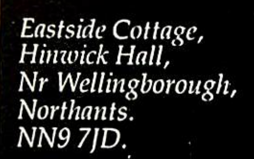
Disc 1 £6.50 - Disc 2 £9.50 - Christmas 1 £6.50 all inc P&P

Send cheques, payable to Capsoft Computer Services, 8, Old Gate Ave, Weston on Trent, Derbyshire, DE27 2BZ

Allow one week for delivery

SOFTWARE SHOWCASE

PUBLIC DOMAIN



Eastside Cottage,
Hinwick Hall,
Nr Wellingborough,
Northants.
NN9 7JD.

Grab a copy of our 5 disc comboPak for just

£4.95

Approx delivery date January 1st!

arctic ZONE

cheques payable to 'arcticZONE'

DTP

Demonstrations of Desk Top Publishing on

Acorn Computers

We are an Acorn Specialist Dealer and offer

Sound Practical Advice - Demo's Daytime, Evenings and Weekend

Computer and Software Sales - Spares and Repairs

Academic's - Teacher's - Student's Purchase Scheme

Telephone Hot Line Technical Support - Home Tuition

High Definition Scanning and Printing Service Available

SELECTIVE COMPUTER SERVICES

Telephone Derby (0332) 690691

Acorn Approved

LICENSED CREDIT BROKER



Micro Laser Designs

Stowey Quarry
Bishop Sutton
Bristol AVON
BS18 4UJ

DTP & GENERAL DESIGN SERVICES AVAILABLE

KIDDIES OUTLINE FONT - Kids handwriting font £9-99

Laser printing service : £1 per A4 side (DrawFiles Etc)
(Hi-res 600 dpi) 10p per additional copy.

P & P included in price. Please add VAT @ 17½ %

Full design service for letter headings, business cards, leaflets, handouts etc.

Full range of hardware available :

SCSI - CD ROM - RAM - CC HARDWARE - PC CARDS

Acorn Publishing Systems Authorised Dealer

& FAX (0761) 452356



DTP

New from P.E.S

!Drawfiles for the Archimedes



Now over 20 mb of clip art - send for catalogue

Endangered Species

ALSO NEW
Planets; The EEC;
Animal Skeletons.

Discs cost £5
plus £1.50 p/p up to
10 discs & VAT

72 Kimberley Road
Leicester LE2 ILF
Tel. 0533 - 733063

Don't forget!



For Acorn Software off the shelf!

As Acorn only specialists, we can provide a first class range of software, computers and peripherals.

Impression II DTP	£198.00	VAT Inclusive
Ovation DTP	£116.33	
Impression Junior	£105.69	

15% discount for cash or cheque payments
Carriage costs £1.00 per order
If it isn't in stock you can have it next working day!



49, Carlton Road Gloucester GL1 5DZ Tel (0452) 311031

Software for education and leisure. Most products under £20.

!Mummy hieroglyphic system

Ask for a brochure

EMERALD PUBLISHING
PO BOX 324 CAMBRIDGE CB2 2TP
TEL: 0223 840138 ◆ FAX: 0223 844652

SPECIAL NEEDS

C.J. COMPUTING
SPECIAL NEEDS

SALES · REPAIRS · SPECIAL NEEDS

Please contact us for all your Acorn computers (Hardware & Peripherals)

We specialise in tailoring computer systems for special needs



57 Westbury Hill,
Westbury-on-Trym,
Bristol
Tel: (0272) 624553

MAGAZINES

VIRTUALITY

1. The Square, Woolavington, Bridgwater, Somerset. TA7 8DL.

Sample Issue - £1

Articles on:
Arm code, BASIC, WIMP, Music, Games, Interviews, Education, Reviews, News, & non-regulars.

Subscriptions:-
12 months - £23.50
6 months - £12.00
3 months - £7.00
1 month - £2.75

Compilation discs:
We can now release the WIMP programming, and ARM code compilation discs. A complete guide to programming in these languages.

ARM code
WIMP code
£5.99 each

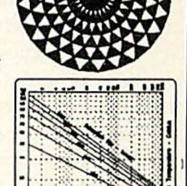
Please make cheques payable to *'Virtuality'*

UTILITIES

!DrawAid

Produce *!Draw* files as varied as these from your own *BASIC* programs.

!DrawAid comes with an Introductory Tutorial, a Reference Guide, and numerous Example Programs.



PRICE £10 including postage. no VAT or send SAE for information sheet.

CARVIC Manufacturing,
Moray Park, Findhorn Road,
FORRES, Moray IV36 0TP

BootOpt

HARDDISC users !!!! Do you or others have different requirements when using your ARC ? Then use BootOpt to Run up to 50 different Desktop Obey files to Boot any Environment, Modules, Applications or floppy discs you regularly use, by holding down a single key when you Reset or Ctrl-Reset. £6.75 inc UK postage or write for full details to

Howard Avon Software Ltd
104 Bournbrook Rd, Selly Oak,
Birmingham B29 7BU.

KEYLINK PROLOG V2.0

For the Archimedes

- Uses standard Edinburgh syntax.
- Comes with 120 page tutorial/manual developed especially for the first time Prolog user.
- Fully integrated into the RISCOS WIMP environment.
- Suitable for use with large Prolog programs such as the Open University's public domain MIKE system for Knowledge Engineering and Expert System development making it ideal for these components of A' level syllabuses.

£69.95 + VAT (postage included).

Keylink Computers Ltd, 2 Woodway House, Common Lane, Kenilworth CV8 2ES. Tel/Fax: 0926 50909

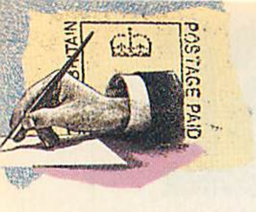
POOLS PREDICTION

Win the Pools

Pools Prediction Applications

Tipster £15.95 **RISC-OS** **Pools £9.95**

Cheques to Minders Software
28 Kendal Green, Kendal, Cumbria. LA9 5PN
Or Phone/Write for Information Pack
0539-740193



£15 STAR LETTER

I read with interest your review of *Prophet*, *BAU* October 1992. I keep hoping that one day it will be possible to replace the invoicing program, which, although it is now much amended, I originally wrote on a series 3 BBC micro, and the manual ledger system that we currently use.

One reason I have not moved to any commercial system is that I strongly believe that a computer program should always be adapted to suit existing working methods and not vice-versa. I have yet to find an accounting package on my chosen computer which is that versatile. I know that one should choose the package and then the computer, but then I happen to like the Archimedes.

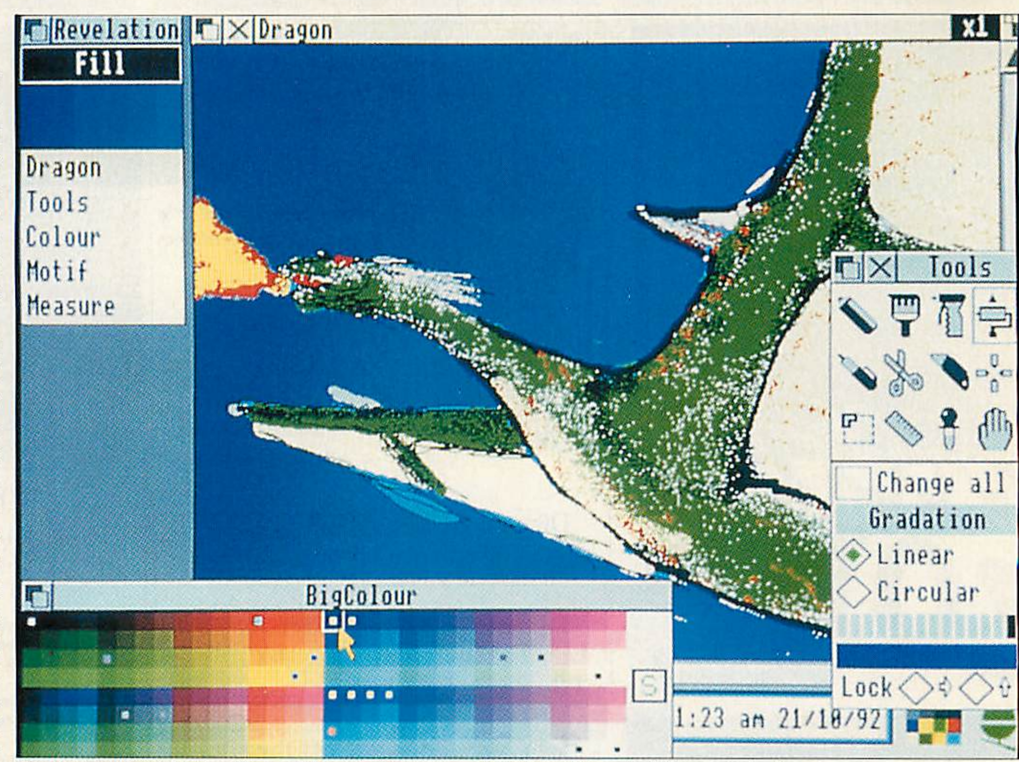
A far more important reason for not adopting any commercial system is that, according to the VAT inspector, a VAT-registered company should only use a computer accounting system that is approved by HM Customs and Excise. This is to ensure that the VAT inspector can properly audit the accounts. If there is such a program for 32-bit Acorn machines then my local VAT office is not aware of it.

C P Bignell
Littlehampton
West Sussex

Local VAT offices recommend packages that you *can* use to do your accounts, although there is no law that you have to use those packages.

But, to put the matter straight, *Prophet* has been checked through by a Customs and Excise officer, according to Apricot Studios, its originator.

In the end it is the responsibility of the person who is using the package to ensure that their tax returns are accurate. When it comes to purchasing software to do accounts then it's obviously a good idea to ask the writers if the package has been run by HM Customs and Excise, and to get the name of the officer who has approved it.



Revelation ImagePro in action, with a menu structure that hides the underlying complexity

PENCIL TO MOUSE

As the designer of *Revelation*, *Revelation 2* and *Revelation ImagePro*, I was interested to read Grant Naylor's letter, *BAU* October 1992. I too am an admirer of many aspects of *Deluxe Paint*, and I am always interested to hear readers' views on graphics software. However, I would like to take issue with your response to his request for a package which could dither fill in two colours and use any sprites as a brush in a drawing tool.

Revelation can do both, but I am aware that this may not be immediately apparent. There are perhaps two ways to construct powerful software. One is to offer a great many specific options from which the user can choose. The disadvantage of this approach is that it generally leads to a complex nested menu structure, or to a cluttered and confusing screen layout.

The alternative is to provide a set of logical building blocks; tools which the user can combine to achieve the effects that they want. This provides a simpler and less intimidating interface for the new user, and it has the advantage of greater flexibility and graphical power, more in line with the open ended process of creative work.

The latter is the design philosophy adopted for *Revelation*. The intention is to create something simple but capable of being used at various levels, a bit like a pencil. One of the most prominent figures at Acorn said '90 percent of the functionality of *Revelation* is transparent to the first time user'. I take this to be a compliment.

However, the penalty of this approach is that apparent simplicity can be taken for lack of functionality, simply because looking down the list of options does not tell you all the things that you can do. Only those who use the package in earnest appreciate its true potential.

Feedback from existing users suggests that we have succeeded – in part at least – in our aim. It is in this context that I welcome your invitation to readers to send in their comments. This is an excellent move, and I look forward to a lively debate in the pages of *BAU* in the coming months.

Michael Cooper
Project Director
Homerton College

KEY ISSUES

We are all slaves to fashion, and fashion dictates that desktop micros shall have a numeric keypad. But it does add to the cost of the machine and, equally importantly, to its size and there is a law of nature that states you never have enough space on your desk. The extra three odd inches that you would get by eliminating the keypad would be welcome.

Without the keypad, the Master Compact would have been even more compact, as well as cheaper and/or more profitable, and might not have suffered an early and much regretted death. I see that Commodore has had the courage to buck the fashion with the Amiga 600.

How about an even cheaper and neater version of the A3000 without a numeric pad? I might rush out and buy one.

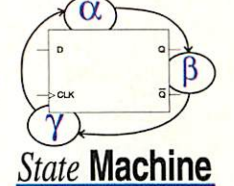
Ruben Hadekel
London SW6

A keypad does adds a level of professionalism to the machine without adding much to the price. Probably, the reason why Commodore adopted the keypad-less approach was to appeal to upgrading console owners.

The G8 Range

of Graphic Accelerator Cards

Resolutions Available
1280x1024 in 2 & 4 colours
1152x848 in 2,4 & 16 colours
1152x424 in 2,4,16 & 256 colours
1024x484 in 2,4,16 & 256 colours
800x600 in 2,4,16 & 256 colours
1024x768 in 2,4 & 16 colours
Normal RISC OS Modes



State Machine

Advanced House
75 Upper Wellington Street
Luton. LU1 5AA
Tel : (0582) 483377
Fax : (0582) 480833

The ultimate, original, graphic expansion card for your Archimedes. More resolution, colours and speed all with less flicker!

The Features

- Indirectly mapped into the screen area ensuring the highest level of compatibility with RISC OS. Direct access to screen memory area fully supported.
- Fully programmable 24 bit colour palette allowing a choice of 16.7 million colours rather than the standard 4096 available with VIDC. True 256 greyscale, primary and VGA palettes supplied for enhanced dithering with RISC OS applications.
- Desk Top Publishing now easier with fully legible one or two A4 page screen displays in 2, 4, 16 or 256 colours. CAD applications enhanced with larger physical desktop work area.
- Unique high speed hardware means at least 25 frames per second local VRAM update is possible. This allows applications such as Acorn Replay, CabelView etc. to run without flicker or tearing of the graphics.
- Provides 50 frames per second update mode 12,15,20,21 etc. modes on 30KHz+ line rate monitors - ideal for current animation software.
- 60Hz - 70Hz refresh rates - totally reduces flicker and eye strain.
- Reduces the processing power requirements of the ARM chip, so speeding up your applications.
- Sound system unaffected unlike when using a VIDC enhancer.
- Extends the high resolution Mode 23 from two colours to 16 at the same resolution allowing A3000 and A5000 computers to use high resolution (Monitor Type 2) in up to 16 colours for the first time.
- Standard 15 pin VGA and 9 pin monitor socket on all cards.
- High quality video output direct from Graphics Controller.
- Surface Mount Technology employed on four layer high quality circuit board.
- Single width podule design - no soldering required.
- Unix software drivers available soon for Acorn R-series machines to allow the use of the larger 4 and 16 colour screen modes.
- Full documentation and support software supplied.
- Compatible with all Archimedes except A3010, A3020, A4000 and A4.
- A3000 version available in external podule case - Must be installed by State Machine - Please ring for details.
- Please note there is no support for TV broadcast monitors (Monitor Type 0)
- Requires RISC OS 3.10.
- Optional software controlled video switch available.

G8 Professional additional features

- Desktop compatible 768x576 CCIR PAL Interlaced in 256 colours.
- 16 bit per pixel modes available (non desktop compatible)
- 1Mb on-board VRAM.
- External genlock facility.
- Hardware panning of screen around larger virtual desktop provided for low and medium resolution monitor users.

G8 Plus .... £249 + VAT
G8 Professional.... £349 + VAT

Dealer Enquires Welcome - Quantity Discounts Available - Educational Discounts Available

Postage and Packing - £3.50 + VAT
All cards carry a 14 day money back guarantee.
Credit Card orders are available via our premier dealer - Advanced Computer Services (see below)

Please ring, fax or write for a full specification sheet

!Accounts - The Definitive Archimedes Accounting Package

Already in use successfully in business, !Accounts has a proven track record performing the functions needed to run a successful company in today's economic climate. The Main Features of the package are:

- **Sales Ledger**
  Account details / credit control / VAT analysis
- **Purchase Ledger**
  Account details / payment control / VAT analysis
- **Nominal Ledger**
  Journal postings / automated postings / VAT analysis
- **Invoicing**
  Invoicing / credit notes / stock linking
- **Quotations**
  Quotation generation / enquiry processing
- **Stock Control**
  Stock level / re-ordering / valuation
- **Report Generator**
  Generates reports from all areas of the package
- **Sales Order Processing**
  Scheduled ordering / stock allocation / invoicing
- **Purchase Order Processing**
  Auto ordering / forward scheduling
- **Cash & Bank Books**
  Bank accounts / payments / receipts / direct debit
- **Payroll**
  Payslip generation / Tax / N.I. / S.S.P
- **Fully Network compatible**
  Unlimited numbers of simultaneous users
- **Bar Codes**
  Optional bar code scanner input

!Accounts - Available in October ...... **£249** + VAT

ArcNET Archimedes & A3000 Network Card

The first, cheap & fast upgrade to the Acorn Econet Network System offering vastly improved speeds. Acorn's new networking strategy - AUN - is fully supported, thereby guaranteeing future compatibility.

- Direct replacement for Econet board or plugs into network slot in new A3020 / A4000.
- Transfer rate of 2.5Mbits and 5Mbits per second. In real terms this means an 8 to 20 times speed increase over Econet, or half the maximum speed of EtherNet
- Can use existing Econet cabling
- Fully RISC-OS compatible
- Feels like Econet - no learning of new software needed.
- Please ring for further details

£69.00 + VAT





75 Wellington Street, Luton. LU1 5AA
Tel: (0582) 20604 Fax: (0582) 480833

Advanced Computer Services are a fully authorised Acorn Service Centre